

Bradyprinter™ THT Model
2024 and 2034
Thermal Transfer Printer

User's Guide

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Part Number: 88-2149-01
Revision: D

AGENCY COMPLIANCE AND APPROVALS:

UL: UL1950 Information Technology Equipment
CSA: C22.2 No. 950-M93
TUV: EN60950, IEC950

1. Nur für Gebrauch innerhalb eines Gebäudes geeignet.
2. Bei Gefahr, Kabel aus der Steckdose herausziehen
3. Falls kein Kabel mitgeliefert wurde, bitte Folgendes bei der Anschaffung eines Kabels beachten:

Für 230 Volt (Europa): Benützen Sie ein Kabel, das mit "HAR" markiert ist, bestehend mindestens aus einem H05VV-F Kabel, das mindestens 0,75 Quadratmillimeter Drahtdurchmesser hat; sowie eine IEC320 Steckdose und einen für das Land geeigneten Stecker, 6A, 250 Volt.

1. This unit is intended for indoor use only.
2. Disconnect power supply cord in case of emergency.
3. When power supply cord is not provided; for proper power supply cord selection please see below:

For 230 Volt Operation (Europe): Use a cord set, marked "HAR," consisting of a min H05VV-F cord which has a minimum 0.75 square mm diameter conductors, provided with an IEC 320 receptacle and a male plug for the country of installation rated 6A, 250V

FCC: This device complies with Part 15 of FCC rules.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions in this manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

IMPORTANT SAFETY INSTRUCTIONS

Your Bar Code Printer has been designed to give you many years of safe, reliable service. As with all electrical equipment, there are a few basic precautions you should take to avoid getting hurt or damaging the Printer.

- Carefully read the installation and operating instructions provided with your Printer.
- Read and follow all warning instruction labels on the Printer itself.
- Place the Printer on a flat, firm, solid surface.
- To protect your Printer from overheating, make sure all openings on the Printer are not blocked.
- Do not place the Printer on or near a heat source, (i.e., a radiator or heat register).
- Do not use your Printer near water, or spill liquid of any kind into it.
- Be certain that your power source matches the rating listed on the back of the Printer. If you are unsure, check with your dealer or with your local power company.
- As a safety device, your Printer has a grounded, 3-prong plug that will only fit into a grounded outlet. If you cannot plug it in, chances are you have an older, non-grounded outlet. Contact an electrician to have the outlet replaced. Do not use an adapter to defeat the grounding.
- Do not place the power cord where it will be walked on. If the power cord becomes damaged or frayed replace it immediately.
- Do not insert anything into the ventilation slots or openings on the Printer.
- Only qualified, trained service technicians should attempt to repair your Printer.

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◆ Introduction

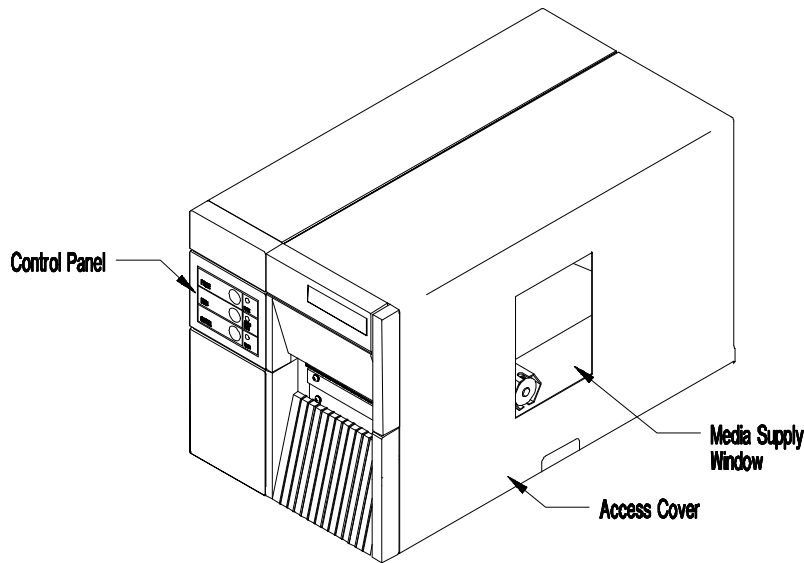


Figure 1-1 Overall View

1.0 Introduction

The Bradyprinter™ THT Model 2024 & 2034, hereafter referred to as 'the Printer', is a high performance, low cost, direct thermal or thermal transfer label printer that uses Reduced Instruction Set Computing (RISC) technology. With its standard 203 DPI (Dots Per Inch) printhead, the Printer can print labels at speeds of up to 10" per second. The thermal transfer model allows for the use of thermal transfer ribbons.

An innovative dot history control circuit called SEAQ™, (Sequential Energy Adjustment for Quality), provides exceptional print quality by monitoring the printhead data and automatically adjusting the printhead element temperatures to provide maximum printhead quality and performance.

The Printer can be connected to almost any computer through its RS-232C/RS422 serial interfaces, IEEE parallel option, or to an IBM® or IBM compatible mainframe through its optional twinax/coax interface.

The Printer can be equipped with operator and field-installed options such as a Cutter, Peel and Present (requires factory installed Internal Rewind), On-line Verification, DRAM, Internal Batch Cartridge, and Memory Cartridges. In addition, the Printer can be purchased with factory installed options, (i.e., Internal Rewind, 300 DPI printhead, and LCD\Keypad front panel), that expand the Printer's capabilities.

Figures 1-1 and 1-2 depict the Printer's parts placement.

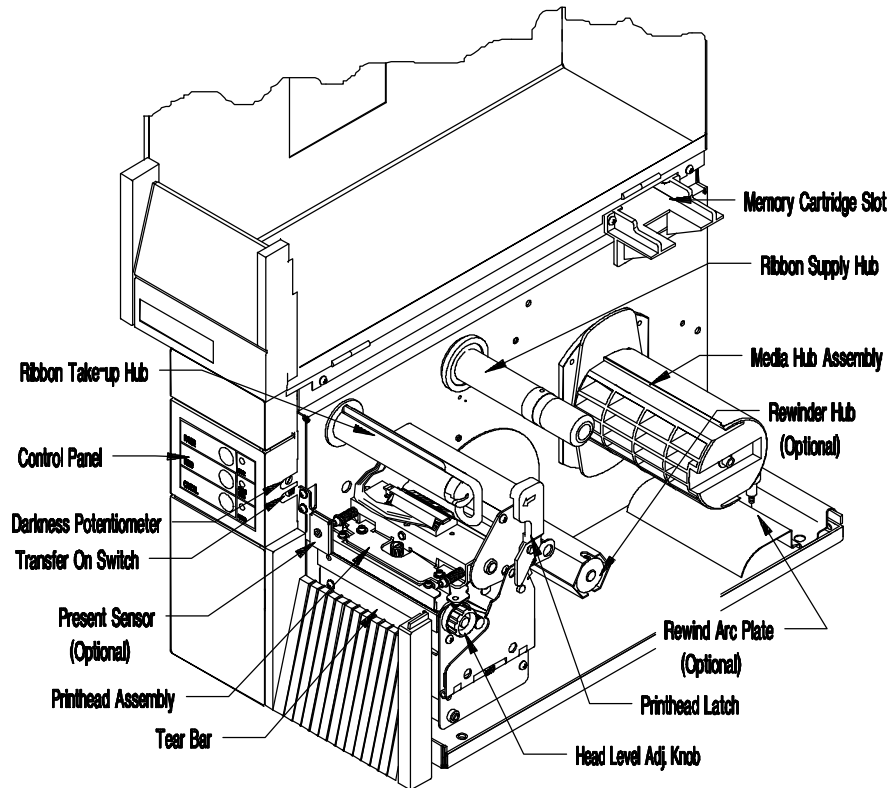


Figure 1-2 Mechanism Detail

1.1 Technical Specifications

Print Technology:	Thermal Transfer – standard
Resolution:	203 DPI (8 dots/mm) – standard Optional 300 DPI – factory installed
Print Speed:	203 DPI 2 to 10 IPS 300 DPI 2 to 8 IPS
Bar Code Modules:	5 mil to 110 mil "X" dimension in picket or ladder orientations @ 203 DPI. 3.3 mil to 80 mil "X" dimension in picket or ladder orientations @ 300 DPI.
Print Width:	4.1" (104mm) maximum
Media Width:	.75" (19mm) – 4.65" (118mm)
Label Length:	12" @ 203 DPI w/512KB (standard) .25" minimum in batch mode .75" minimum in tear off or peel mode 12" @ 300 DPI w/1MB (standard) .25" minimum in batch mode .75" minimum in tear off or peel mode
Media Type:	Roll-Fed, Die-Cut Continuous, Fan Fold, Tags or Tickets
Media Thickness:	.0025 - 0.010" (.0635mm to .254mm), standard widths (.0050 - .0080 for .75" –1" label widths)
Media Supply:	8" (203mm) maximum diameter on 3"(76mm) cores
Bar Codes:	Code 39, Interleaved 2 of 5, Code 128 (Subsets A, B, and C) Codabar, UPC-A, UPC-E, UPC 2 and 5 digit addendums, EAN-8, EAN-13, EAN 2 and 5 digit addendums, Code 93, UPC random weight, Universal Shipping Container Symbology Plessy, Postnet, UCC/EAN 128, PDF 417 and Maxicode
Internal Fonts:	CG Triumvirate Bold/Condensed (scalable) CG Triumvirate (smooth bit mapped font 6 - 48 pt)

Cartridge Slots:	One Cartridge Slot (Memory)
Standard DRAM:	512KB w/203DPI, 1 MB w/300DPI
Standard EPROM:	2048KB w/203 DPI, 2048KB w/300DPI
Counters:	2 Linear Inch Counters; one absolute and one resettable
Interface:	RS232, RS422 @ 300 -19,200 baud, XON/XOFF, CTS/RTS
Dimensions:	11.38" H x 10" W x 18.25" D (289mm H x 254mm W x 463mm D)
Operating Temperature:	40° F to 105° F (5° C to 40° C)
Power Source:	115 VAC or 230 VAC 60HZ/50HZ

Additional Options

LCD/Keypad:	Front panel with a 2 row x 16 character LCD display and a 6 key operator's keypad
DRAM:	Expandable to 4MB (via a daughter board)
256KB/512KB Flash Cartridge:	Permanent Storage of Custom Fonts, Graphics, and Formats
Cutter with Tray:	Maximum Thickness: 0.010" (.254mm)
Internal Rewinder:	5½" maximum O.D. capacity with no core
Twinax/Coax:	Supports IBM® Mid-range and Mainframe Computers
High Speed Interface:	IEEE Parallel Interface plus Serial I/F up to 56K BPS
Present Sensor:	On-demand label dispensing
Internal Batch:	Cartridge with VT 100 emulation and storage Cartridge with Link MCII emulation and storage

1.2 Standard Ribbon Sizes

The manufacturer stocks the following standard ribbon sizes: 1.57", 2.36", 3.27", and 4.33". The standard ribbon length is 328 linear yards. It is recommended that the width of the thermal-transfer ribbon be within 10% of the label width. Additional sizes other than those listed are available on a custom-order basis.

1.3 Label/Tag Media Specifications

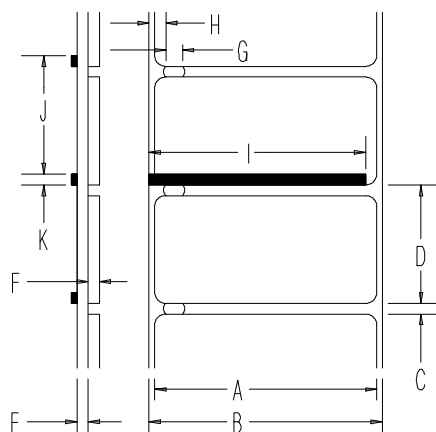


Figure 1-3 Media Dimensions

	Description	MAX. (inches)	MIN. (inches)
A	Label width	4.650	0.750
B	Backing width	4.650	0.750
C	Gap between labels	99.99	0.100
D	Label length	99.99	0.250
E	Backing thickness	0.010	0.0023
F	Label thickness	0.010	0.0025
G	Width of sensor opening	0.500	0.200
H	Distance media edge to sensor opening	2.250	0.200
I	Reflective sensor mark width. It is recommended that the entire width of the label is marked.	4.00	1.000
J	Distance between reflective mark	99.99	0.500
K	Reflective sensor mark length	99.99	0.100

Table 1-1 Media Specifications

NOTE: The reflective sensor mark must be carbon based. The sensor is infrared and will reflect off of a plain black mark.
The total thickness of label and backing is .010 inches max.

◆ Getting Started

2.0 Introduction

This chapter will assist you in unpacking, configuring the communications, connecting your Printer, loading media stock, and installing the ribbon.

2.1 Unpacking

Inspect the shipping container(s) for signs of shipment damage. If damage is evident, contact the carrier directly to specify the nature and extent of the damage.

The printer is packed in molded styrofoam packaging. The Printer is enclosed in a plastic bag to reduce the chance of moisture damage during shipment. Remove the Printer from the plastic bag.

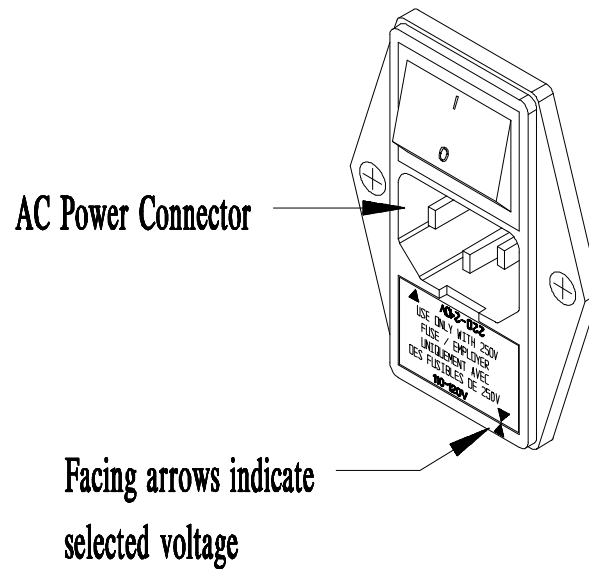
In addition to this manual, the shipping container(s) should include the following standard items:

- Label printer
- AC power cord
- Special or additional items purchased.

2.2 Checking the AC Power Requirements

The standard Printer is configured for 115 VAC $\pm 10\%$ single-phase 50/60 Hz with a properly-grounded outlet. A small sticker next to the power cord connection states the power requirements.

The Printer is also manufactured for 230 VAC operation, most of these Printers are shipped to international markets. If you are uncertain as to the power requirements of the Printer, or the outlet you are connecting to, check with a qualified service technician to verify the installation before connecting AC power.



	<p>Check the rear AC switch settings before applying power. The facing arrows must be selected to match the supplied voltage rating, (115VAC or 230VAC).</p>
CAUTION	

2.2.1 Selecting 230 VAC Operation

If your Printer's AC power requirements do not match your AC power, the rear AC voltage selection switch can be changed. If you wish to change from 115 VAC to 230 VAC, follow the instructions outlined below.

1. Remove the AC power cord (if installed).
2. Insert a flat bladed-screwdriver into the release slot and push out the fuse holder/voltage selector switch.
3. Flip/rotate the fuse holder/voltage selection switch over and re-insert it.
4. Attach the 230V power cord.

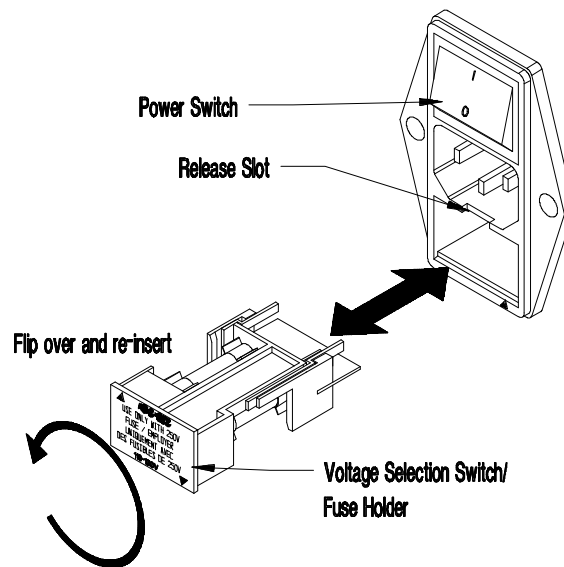


Figure 2-1 Selecting 230 VAC

2.3 Connecting the Printer

You will need a serial cable to connect your computer to the Printer's RS232/RS422 serial interface connector. Connect your Printer's cables as outlined below.

1. Make sure both the Printer and host computer are turned off.
2. Plug the serial cable connector securely into the Printer's serial connector and then attach it to the connector.
3. Plug the other end of the cable into the computer's serial interface.

NOTE: An optional parallel port is available. See your retailer for details.

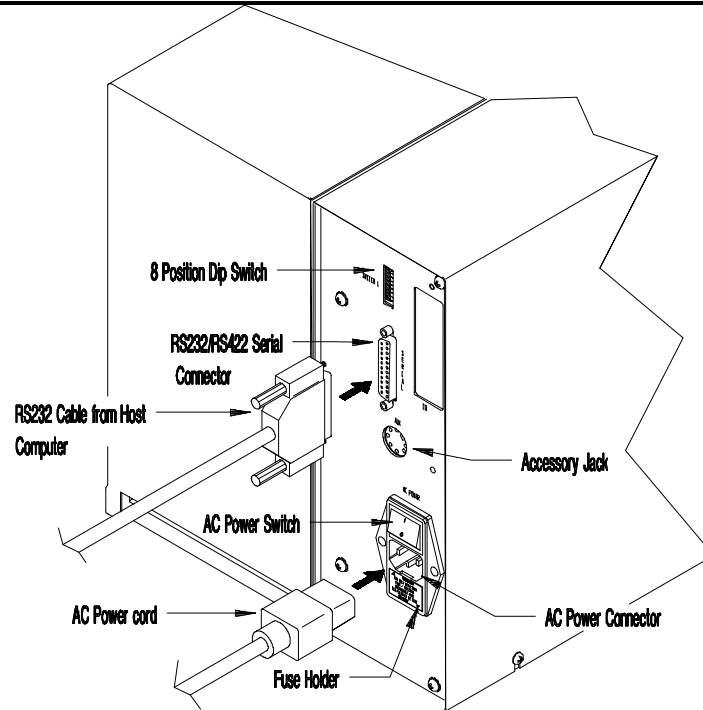


Figure 2-2 Rear Printer Connections

2.3.1 Interfacing to the Printer

For most applications, the interface between the Printer and the host device will be RS-232C. The interface cable is connected between the Printer and the host via the DB-25 connector. The DB-25 connector is labeled "serial" and is located on the back of the Printer. Several typical cable interfaces are listed in Table 2-1.

The Printer supports both XON/XOFF and CTS/DTR handshaking. For connection to most host systems, the XON/XOFF handshaking works to reduce the number of wires needed in the interface cable. For interfacing RS-422 devices, the XON/XOFF handshake is the only appropriate method. Refer to Table 2-2 for the appropriate communications cable needed for your configuration.

When a serial (RS-232C) interface between the Printer and the host will be used, a serial interface cable is needed to connect the Printer to the host. Cable configurations for typical interfaces are shown below, (contact your reseller for part numbers and ordering information).

Null Modem (MXM)		“PC” (DB25P) to Printer	
HOST (DTE)	PRINTER (DTE)	PC* (DTE)	PRINTER (DTE)
1 SHIELD 1		1 SHIELD 1	
TXD 2 3 RXD		TXD 2 3 RXD	
RXD 3 2 TXD		RXD 3 2 TXD	
7 GROUND 7		CTS 5 20 BUSY	
RTS 4 4 RTS		7 GROUND 7	
CTS 5 5 CTS		6	4 RTS
DB25P	DB25P	8	5 CTS
		20	
		DB25P	DB25P

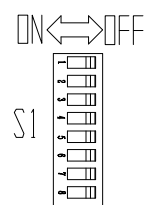
“PC” (DB9P) to Printer		RS-422 Connection	
PC* (DCE)	PRINTER (DTE)	HOST SYSTEM	PRINTER PORT
NC SHIELD 1		RXD + 9 TXD +	
TXD 3 3 RXD		RXD - 10 TXD -	
RXD 2 2 TXD		TXD + 18 RXD +	
CTS 8 20 BUSY		TXD - 19 RXD -	
5 GROUND 7			4
6 4 RTS			5
4 5 CTS			DB25P
DB9S	DB25P		

Table 2-1 Interface Cable Applications

Other applications may require a parallel connection from the Printer to the host. The Printer can be connected to the host with a standard parallel printer cable if the Printer is equipped with the optional parallel interface option.

2.3.2 Dip Switch Settings

For proper operation, you must set the baud rate, parity, and stop bits of the Printer's interface. On the rear of the Printer, you will find SWITCH 1 (S1), an eight-position dip switch used to set the Printer's communications parameters, (see Table 2-3).



NOTE: SWITCH 1 (S1) is not available with the LCD/Keypad Front Panel Option, (see Section 3.2 when setting the communications parameters for this option).

	S1-1	S1-2	S1-3	S1-4	S1-5	S1-6	S1-7	S1-8
Baud Rate								
9600	OFF	OFF	OFF	X	X	X	X	X
4800	OFF	OFF	ON	X	X	X	X	X
2400	OFF	ON	OFF	X	X	X	X	X
1200	OFF	ON	ON	X	X	X	X	X
600	ON	OFF	OFF	X	X	X	X	X
300	ON	OFF	ON	X	X	X	X	X
19200	ON	ON	OFF	X	X	X	X	X
TEST/9600	ON	ON	ON	X	X	X	X	X
Word length/Parity								
7-Bit /Even	X	X	X	ON	X	X	X	X
8-Bit /None	X	X	X	OFF	X	X	X	X
Compatibility Mode (Form Edge Offset)								
Offset =1.10" (27.9mm)	X	X	X	X	OFF	X	X	X
Offset =2.20" (55.9mm)	X	X	X	X	ON	X	X	X
Present Sensor								
Enable	X	X	X	X	X	ON	X	X
Disable	X	X	X	X	X	OFF	X	X
Control Codes								
Standard	X	X	X	X	X	X	OFF	X
Alternate	X	X	X	X	X	X	ON	X
Cutter Enable								
Disable	X	X	X	X	X	X	X	OFF
Enable	X	X	X	X	X	X	X	ON

Table 2-2 Communications Dip Switch Settings

NOTE: Select the 8-bit word length if you wish to access the foreign language characters from the ASCII Code chart. These characters are available in fonts 1–6 and 9.

2.4 Memory Cartridges

The Printer has one standard memory cartridge slot. The primary use of the memory cartridges is for storing label formats, graphic images, fonts and for internal batch. Follow the instructions outlined below when installing memory cartridges.

1. Ensure that all printing has been completed.
2. Open the Side Access Cover.
3. Plug the Memory Cartridge into the Memory Cartridge Slot with the label face-up.

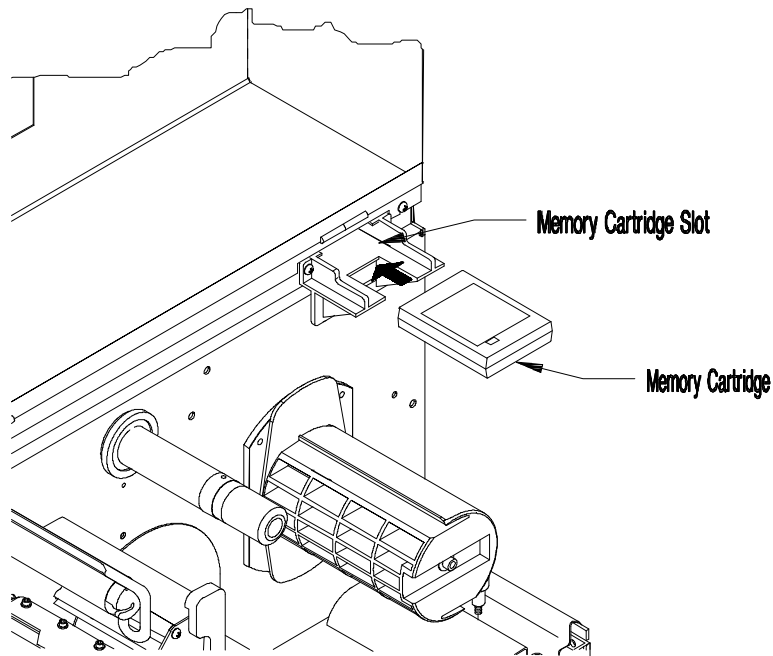


Figure 2-3 Installation of a Memory Cartridge

NOTE: Use only memory cartridges designed specifically for your Printer, flash modules have a Write Protect Switch.

2.5 Media Loading

The Printer supports up to an 8" (203mm) diameter roll of media, (if media less than 4 inches wide is used, refer to Section 5.3.1 before loading media). Follow the instructions outlined below when installing the media stock.

1. Open the Printer's Side Access Cover.
2. Rotate the Printhead Latch (1) counterclockwise to unlatch and raise the Printhead to an upright position.
3. Lower the Hinge Plate (2).
4. Slide the Media Edge Guide (3) to the outer edge and rotate it to the down position.

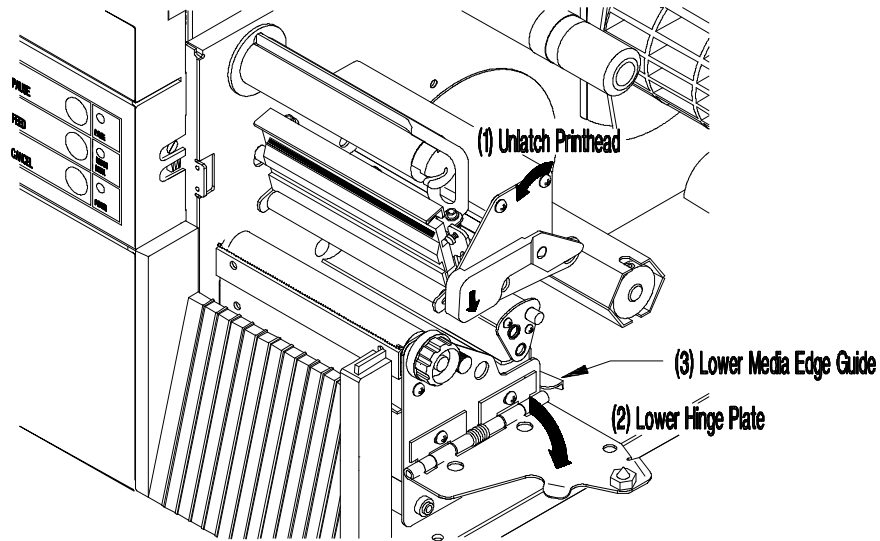


Figure 2-4 Media Access

NOTE: If using fanfold media, skip steps 5 and 6. Install fanfold media as shown in figure 2-5b.

5. Place the 3" Media Core Adapters on the Media Hub Assembly, (if using media with 3" media cores).

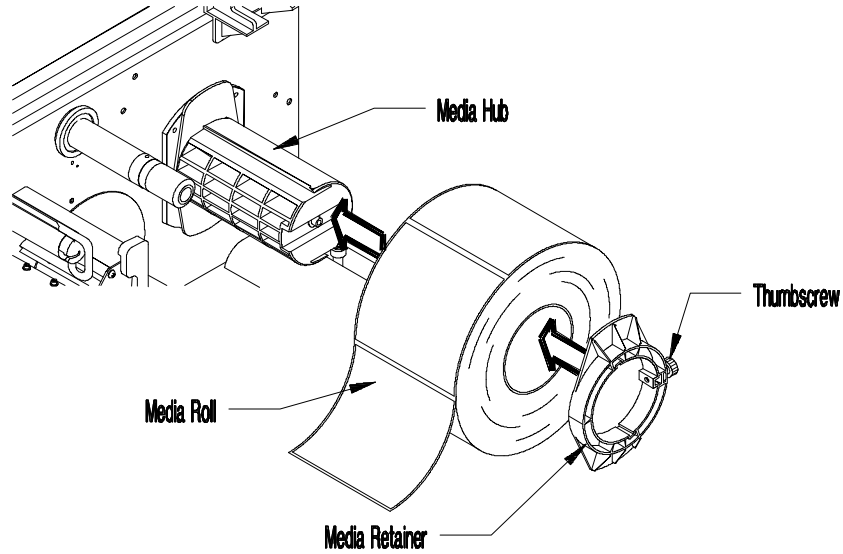


Figure 2-5a Media Installation (3" core)

6. Place the Media Supply Roll on the Media Hub Assembly. Slide the media retainer against the supply roll and tighten the thumb screw.

NOTE: Do not use the media retainer if the Media Supply Roll is wider than 4 inches (102mm).

7. Route the media over the Guide Plate, between the Media Sensor, and over the Platen Roller, (located beneath the Printhead), as shown in Figure 2-5b.
8. Rotate the Media Edge Guide up and slide it to the media's edge.
9. Close the Hinge Plate and lower the Printhead by rotating the Printhead Latch clockwise to the latched position.

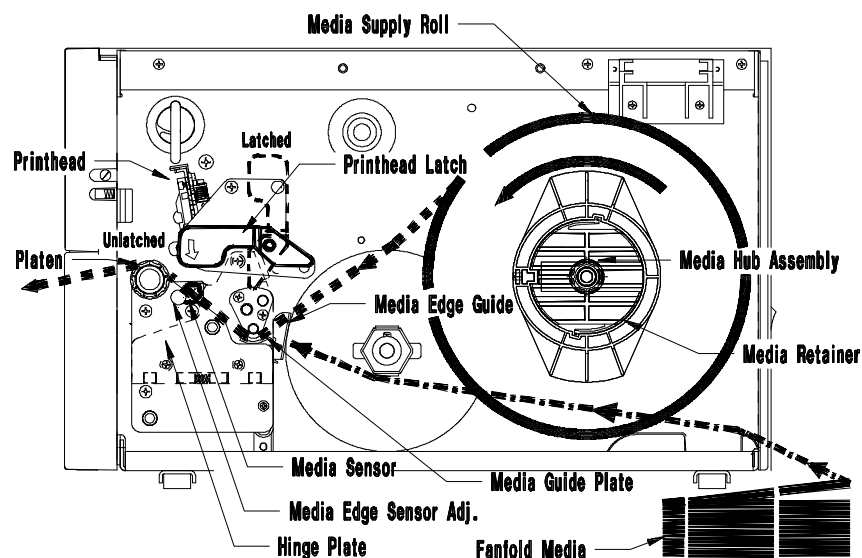


Figure 2-5b Media Installation

NOTE: If the media is not sensing, try adjusting the Media Edge Sensor by turning the Media Edge Sensor Adjustment knob (*see Section 5.3.2*).

2.5.1 Using the Optional Internal Rewind

If the Internal Rewind Option is installed in your Printer, then the media and Arc Plate should be installed as described below.

NOTE: The Arc Plate is supplied only with the Internal Rewind Option.

1. Turn off the Printer and open the Side Access Cover.
2. Follow steps 2, 3, and 4 of Section 2.5 before installing media.
3. Open the Lower Right Front Panel.
4. Remove the Arc Plate from its stored position and install it on the front of the Printer as shown in Figure 2-6.

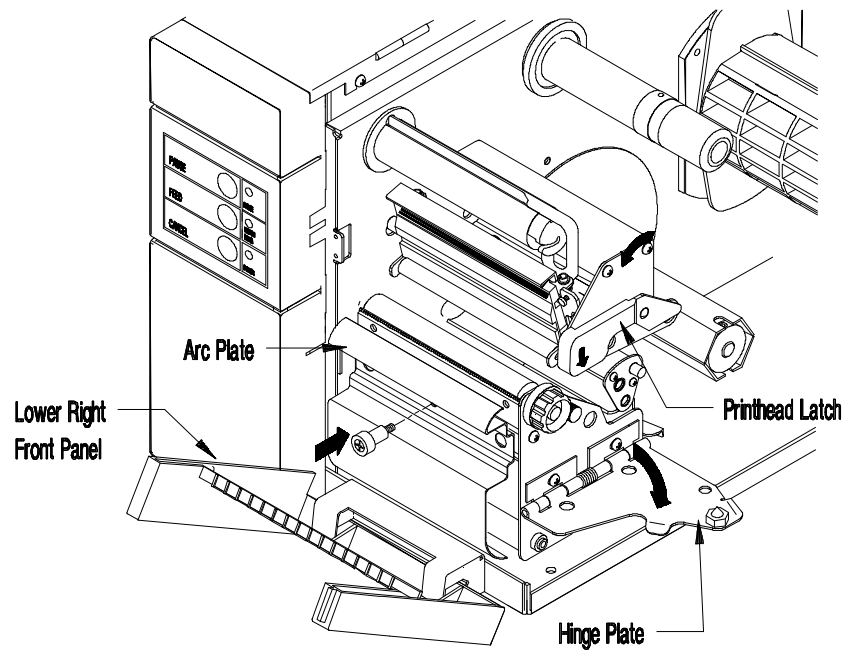


Figure 2-6 Installing the Arc Plate for Internal rewind

5. Place the media core adapters on the Media Hub Assembly if using 3" cores, (see Figure 2-5a).

6. Place the Media Supply Roll on the Media Hub Assembly. Slide the media retainer against the Media Supply Roll and tighten the thumb screw.

NOTE: Do not use the media retainer if the media is wider than 4" (102 mm).

7. Route the media over the Guide Plate, between the Media Sensor, and over the Platen Roller, (located beneath the Printhead), around the Arc Plate and to the Media Rewinder as shown Figure 2-7.
8. Place the Clasp over the end of the media and rotate the Media Rewinder a few turns.
9. Rotate the Media Edge Guide up and slide it to the media's edge.
10. Close the Hinge Plate and latch the Printhead by rotating the Printhead Latch upward to the latched position. Close the side cover.

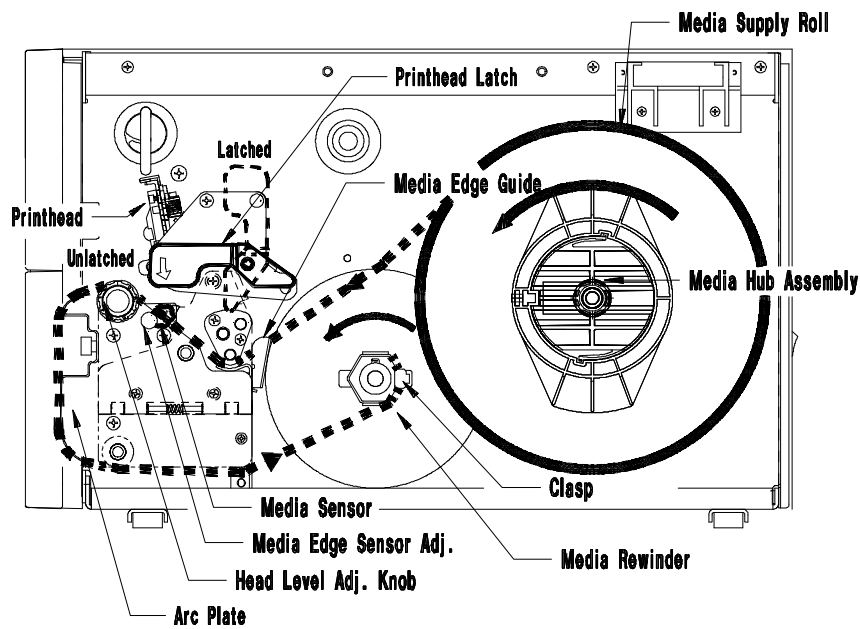


Figure 2-7 Installing Media with Internal Rewind Option

2.5.2 Using the Peel and Present Option

The Peel and Present Option allows for on-demand label dispensing and requires the Internal Rewind Option. To use this option follow the instructions outlined below.

1. Turn off the Printer and open the Side Access Cover.
2. Follow steps 2, 3, and 4 of Section 2.5 before installing media.
3. Open the Lower Front Panel.
4. Using a phillips screw driver, remove the Tear Bar, invert it (flip it over), and re-install it as shown in Figure 2-8.

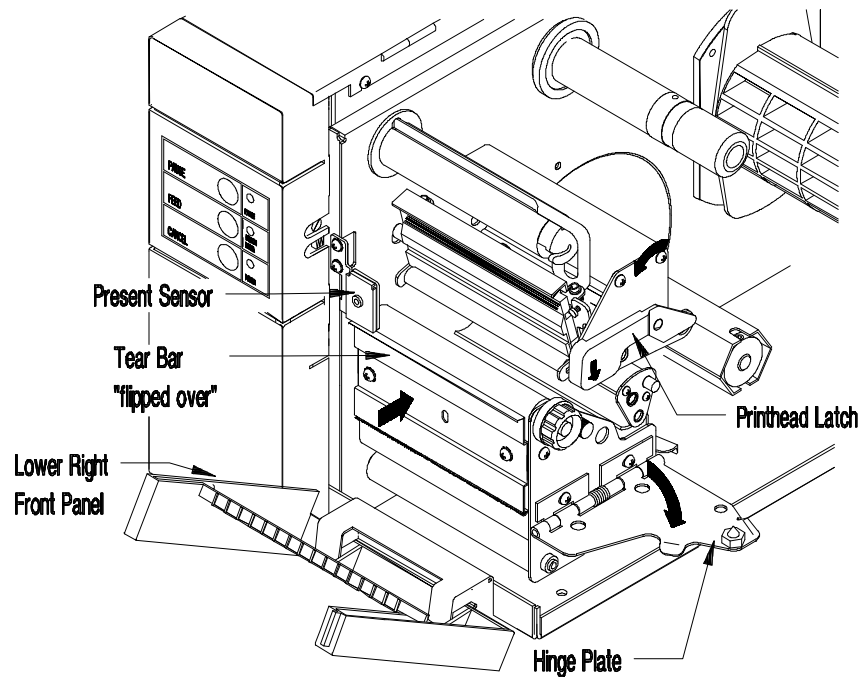


Figure 2-8 Using the Peel and Present Option

NOTE: If media narrower than 4 inches is used, refer to Section 5.3.1 before loading media.

5. Place the Media Supply Roll on the Media Hub Assembly. Slide the media retainer against the supply roll and tighten the thumb screw.
6. Route the media over the Guide Plate, between the Media Sensor, and over the Platen Roller (located beneath the Printhead).
7. Route the media liner (backing) around the Tear Bar to the Media Rewinder as shown in Figure 2-9.
8. Place the Clasp over the end of the media and rotate the Media Rewinder a few turns.
9. Rotate the Media Edge Guide up and slide it to the media's edge.
10. Lift and snap the Lower Right Front Panel closed.
11. Close the Hinge Plate and latch the Printhead by rotating the Printhead Latch clockwise to the latched position. Close the side cover.

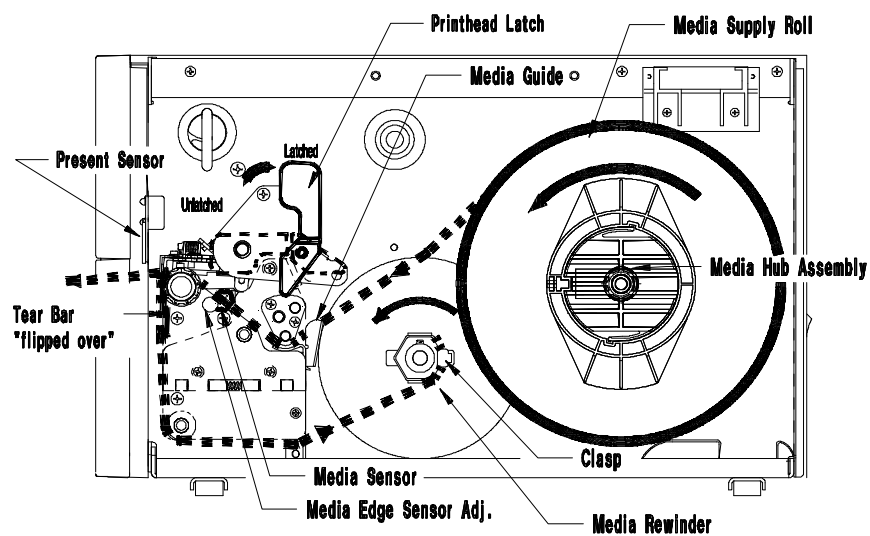


Figure 2-9 Installing Media using Peel and Present Option

2.6 Ribbon Installation and Removal

Follow the instructions below when installing the thermal transfer ribbon.

Ribbon Installation:

1. Open the Side Access Cover.
2. Rotate the Printhead latch counterclockwise to unlatch and raise the Printhead.
3. Lower the Hinge Plate.
4. Place the new Ribbon Supply Roll on the Supply Hub, making sure that the ribbon roll is pushed up against the hub flange.

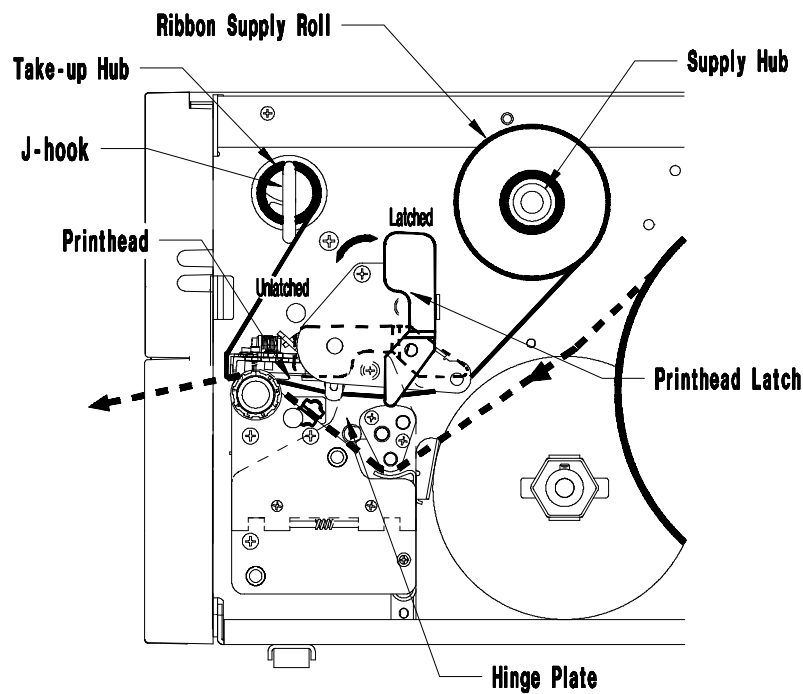


Figure 2-10 Ribbon Installation

5. Route the ribbon as shown in Figure 2-10 to the Take-Up Hub.
6. While holding the ribbon Take-Up Hub, rotate the J-hook clockwise to unlatch it.
7. Raise the J-hook upward and place the end of the ribbon over the Take-Up Hub.

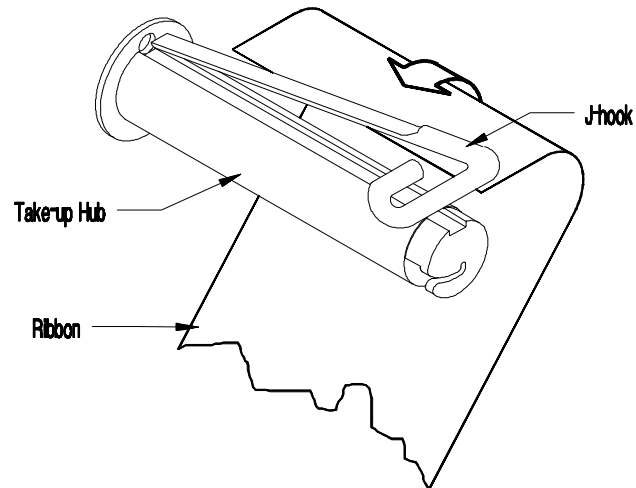


Figure 2-11 Ribbon Installation showing J-hook

8. Slide the J-hook back into place as shown in Figure 2-11. While holding the ribbon Take-Up Hub, rotate the J-hook counter-clockwise to latch.
9. Turn the Take-Up Hub until all of the ribbon slack is removed.

10. Raise the Hinge Plate and close the Printhead by rotating the Printhead Latch clockwise.
11. Locate the Ribbon ON/OFF switch, (*see Figure 2-12*), and slide the switch to the right to select Thermal Transfer (ribbon on). This Switch is not available with the LCD/Keypad Front Panel Option, (*see Section 3.2*).

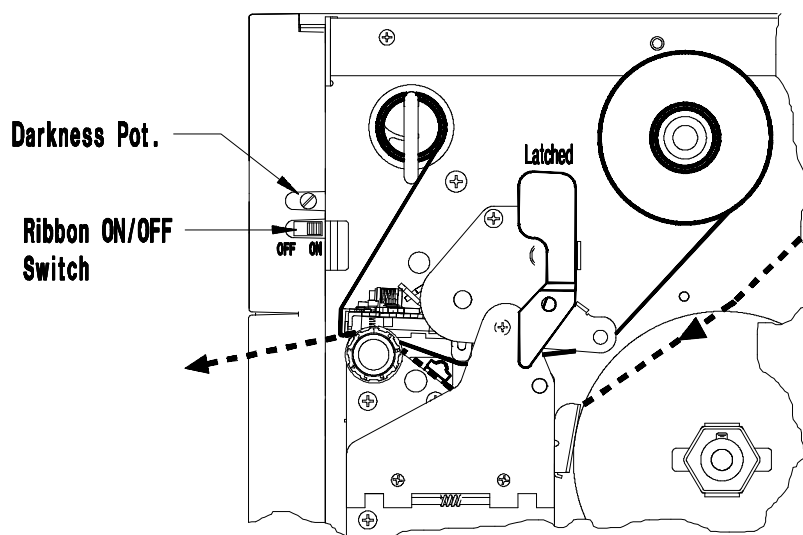


Figure 2-12 Selecting Ribbon On (Thermal Transfer)

Ribbon Removal:

1. Cut the ribbon anywhere between the Take-Up Hub and Printhead.
2. Rotate the Printhead Latch counterclockwise to raise the Printhead, then lower the hinge plate.
3. While holding the ribbon Take-Up Hub, rotate the J-hook clockwise to unlatch it, then slide off the used ribbon.
4. Turn the Ribbon Supply Hub clockwise to draw the unused portion of the ribbon back onto the Ribbon Supply Roll.
5. Raise the Hinge Plate and close the Printhead by rotating the Printhead Latch clockwise.

◆ Using Your Printer

3.0 Introduction

This chapter will explain the front panel operation, how to install memory cartridges, and replace the fuse.

3.1 Front Control Panel

The Printer has five (5) operator accessible switches and three (3) LED indicators, (*see Figure 3-1*). A brief description of the switches and LED indicators is listed in this section.

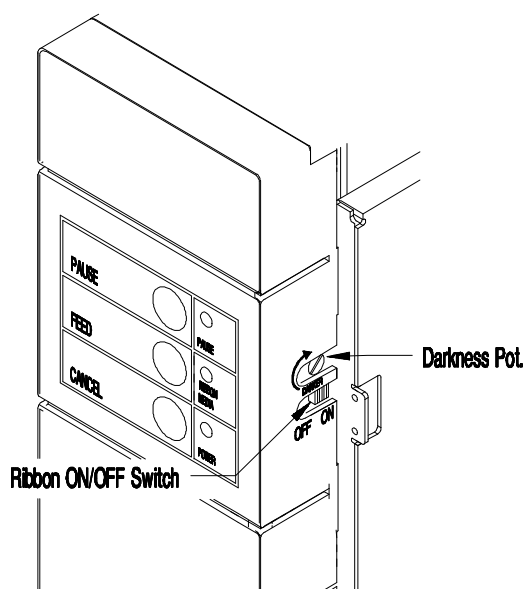


Figure 3-1 Front Panel



The POWER indicator light is lit when power is available and the rear POWER switch is activated.



This indicator is lit when no media edge and/or no ribbon motion is detected; a fault condition.

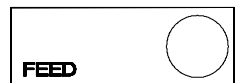


The PAUSE indicator will turn on if any of the following occurs:

- The PAUSE switch is pressed.
- A print job is canceled with the CANCEL switch.



This switch temporarily interrupts the printing process illuminating the Pause LED. A second press allows printing to resume and extinguishes the LED.



When pressed the paper will advance to the first print position of the next label. In addition this button is used to clear fault conditions indicated by the Ribbon Media LED.



Interrupts and deletes the active print job.

RIBBON ON/OFF SWITCH:

For direct thermal printing, (no ribbon), slide the switch to the "off " position. For thermal transfer printing, (ribbon installed), slide the switch to the "on" position. **This Switch is not present on the LCD/Keypad Front Panel Option.**

DARKNESS POT:

This potentiometer is used to fine adjust print darkness to variations in the media. **This potentiometer is not present on the LCD/Keypad Front Panel Option.**

3.1.1 Optional LCD/Keypad Front Panel

The Printer can be equipped with an optional, factory-installed LCD/Keypad front panel. If this option is installed on your Printer, refer to this section for menu and function information.

The front panel is equipped with a 2 row x 16 character LCD display and a (six) 6 key operator's keypad. The three (3) control switches and indicators operate the same as indicated in Section 3.1.

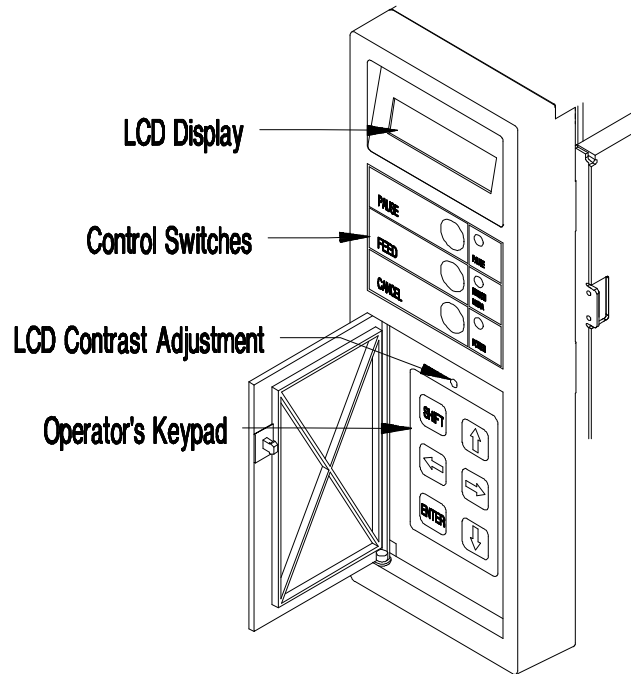


Figure 3-2 Optional LCD/Keypad Front Panel

NOTE: If the Printer was purchased with the optional LCD/Keypad front panel, the configuration for the Printer will be set via the keypad. On the standard Printer, these configurations are set through the rear dip switches.

The operator's keypad consists of six (6) pressure sensitive switches. The function of each keypad switch is described as follows:

- | | |
|--------------|---|
| SHIFT | <ul style="list-style-type: none">• Moves to the next available field |
| ⇐ ⇨ | <ul style="list-style-type: none">• Scrolls through the current menu selection• Increases and decreases values |
| ⇑ | <ul style="list-style-type: none">• Returns to the previous menu level |
| ⇓ | <ul style="list-style-type: none">• Moves to the next menu level |
| ENTER | <ul style="list-style-type: none">• Selects a function or value• Used to respond "yes" to an operator query |

Display Contrast – used to adjust the LCD display brightness

3.2 Using the Optional LCD/Keypad Front Panel

The menu structure is divided into two primary menus, BASIC FUNCTION and ADVANCED SETUP. Use the ⇓ arrow key to move to the primary BASIC FUNCTION menu, then use the ⇐ ⇨ arrow keys to scroll to the desired sub menu. Once in the desired sub menu, use the ⇓ ⇑ arrow keys to move into or out of the desired sub menu. Use the ⇐ ⇨ arrow keys to display the available values. Use the ENTER key to set the desired value or condition.

When the ENTER key is pressed, an asterisk (*) will appear indicating that the selection has been made. The asterisk (*) also indicates the current default setting.

Upon exiting the ADVANCED SETUP menu, the Printer prompts 'CHANGES DEFAULT'. By pressing the ENTER key the changes are saved as defaults. Pressing the ⇑ arrow key exits without saving the changes, except under DATE/TIME, and areas where no asterisk (*) is used for default. Exiting without saving will cause all changes to return to the default values when the Printer is turned off.

Basic Function

BASIC FUNCTION PRINT METHOD

DIRECT*
TRANSFER

- Selects the type of printing desired
- Selects direct thermal printing (no ribbon installed)
- Selects thermal transfer printing (ribbon installed)

BASIC FUNCTION SELECT TOF

GAP*
REFLECTIVE
CONTINUOUS

- Top Of Form
- Default – looks for gap between labels
- Senses black stripe on back side on media
- No Top Of Form sensing

BASIC FUNCTION DARKNESS

Values 1-64

- Used to balance a new Printhead's level of darkness
- 1 indicates the lightest and 64 indicates darkest setting

BASIC FUNCTION COMM SETUP

*PORTA 9600
8 N 1 BOTH

- Sets the parameters for the communication port
- Communications port and Baud rate, Word length, Parity, Stop Bits, Protocol.
 - Word lengths = 7, 8
 - Parity = None, Even, Odd
 - Stop Bits = 1, 2
 - Protocols = BOTH, DTR, XON/XOFF
 - Baud rates = 300, 600, 1200, 2400, 4800, 9600, 19200

BASIC FUNCTION LABEL PRESET

ENABLE
DISABLE*

- Selects the Peel and Present Option
- Selects the Present Sensor
- No Present Sensor selected

BASIC FUNCTION CUTTER

ENABLE
DISABLE*

- Controls Cutter Option, if installed
- Cutter Option installed or selected
- No Cutter Option installed or used

BASIC FUNCTION RIBBON SAVER

ENABLE
DISABLE*

- Controls Ribbon Saver Option, if installed
- Ribbon Saver selected (stops ribbon from advancing during voids of .95 inches or larger)
- Ribbon Saver not installed or selected

* represents default settings

**BASIC FUNCTION
INTERNAL BATCH**

ENABLE
DISABLE*

- Allows internal label creation with Internal Batch Cartridge

**BASIC FUNCTION
CONVERSION**

METRIC
DECIMAL*

- Used to set the Printer's system of measurement
- Printer interprets all measurements as metric values
- Printer interprets all measurements as decimal values

**BASIC FUNCTION
TOF ADJUST**

- Selects the point where the label's edge is detected by the sensor
- Set start of print from the label's edge. 128 sets the start of print approximately .3 inches, (7.6 mm) from the label's edge

Advanced Setup**ADVANCED SETUP
COUNTERS**

ABSOLUTE VALS.
RESETTABLE VALS.
RESET COUNTERS

- Non-resettable counter (viewed only)
- User resettable counter (can keep track of labels)
- Resettable values re-start at 0

**ADVANCED SETUP
DATE/TIME**

SET DAY NAME day
hh:mm a dd mon yr

- Allows current date and time to be set

**ADVANCED SETUP
LABEL OPTIONS**

HEAT SETTING
PRINT SPEED

SLEW SPEED

BACKFEED SPEED

ROW ADJUST

COLUMN ADJUST
CONT. LABEL LEN

- Values: 00 to 30, (*10) (0 = lightest, 30 =darkest)
- Values: 2ips to 10ips, (*6) (Print speed/ inches per sec)
- Values: 2ips to 10ips, (*7) (Label feed rate/ inches per sec.
- Values: 2ips to 5ips, (*3.5), (rate the printer backs up label
- Vertical position where printing begins, (*0) (shifts up)
- Values 0 to 410, (0*)
- Values 0000 to 9999, (*0) (00.00 to 99.99") (label page length)

* represents default setting

- | | |
|---------------|---|
| LABEL WIDTH | • Values 75 to 410 (.75 to 4.1"), label printing width in inches (*410) |
| PRESENT DIST. | • Distance from the printhead to where the label stops (*0) |

**ADVANCED SETUP
SYSTEM OPTIONS**

- | | |
|--|---|
| FACTORY SETTING | • Returns the Printer to its original factory settings |
| SECURITY CHECK
PASSWORD
DIP SWITCH #1
NONE* | • Selects security features to protect Advanced Setup |
| MODIFY PASSWORD | • Allows the user to change the entry password |
| INTERNAL MODULE
0 - 1000 | • Internal Module (ID-A). Memory size- 4K byte blocks; default 15 |
| SCALABLE FONT
0 - 1000 | • Scalable font cache allocation 4K byte blocks (*0) |
| SYMBOL SET
28 SELECTIONS | • Scalable font symbol set selection, see Programmer's Manual |

**ADVANCED SETUP
OPERATION**

- | | |
|-------------------------------------|---|
| PAUSE MODE
ENABLE
DISABLE* | • Suspends printing between each label until the pause button is pressed |
| FEEDBACK MODE
ENABLE
DISABLE* | • Returns ASCII character 30 after each label and character 31 after each batch of labels are printed |
| TEST MODE
ENABLE
DISABLE* | • Sends debug characters to host while printing |

**ADVANCED SETUP
COMMUNICATIONS**

- | | |
|--------------------------------|--|
| SERIAL PORT A
CONTROL CODES | • Standard and alternate control codes |
|--------------------------------|--|

* represents default setting

ADVANCED SETUP MAINTENANCE

TEST PRINT

- | | |
|-----------------|--|
| CURRENT CONFIG | • Prints a configuration test label of current selections |
| DATABASE CONFIG | • Prints a configuration label of default menu selections |
| TEST RIBBON | • Test reflects the status of the ribbon type |
| TEST PATTERN | • Prints label with a test pattern (to check dot elements) |

FRONT PANEL

- | | |
|--------------|--|
| LED TEST | • Exercises the front panel indicator LEDs |
| KEYPAD TEST | • Checks the operation of the front panel keypad |
| DISPLAY TEST | • Exercises the front panel LED display |

TEST I/O

- | | |
|------------------|--|
| MONITOR GP INPUT | • Allows monitoring of the General Purpose Input |
| TEST GP OUTPUT | • Allows testing of the General Purpose Output |
| SENSOR READINGS | • Displays the status of the digital and analog sensors |
| DIGITAL SENSORS | • Displays digital sensors with active values below them |
- | | | |
|--------------------|-----------|----------------|
| HD = Head | D=Down | U=Up |
| CT = cutter | D=Down | U=Up |
| LP = label present | Y=Blocked | N= Not Blocked |
| RS = ribbon saver | D=Down | U=Up |

ANALOG SENSORS

- Displays 4 analog sensors with sensor values below each
- | | |
|---------------------|---------------------------|
| THR = Thermal | RF* = reflective TOF mode |
| RIB = Ribbon motion | TR* = Transmissive |
- (* only the active mode is displayed)

SERIAL LOOPBACK

- | | |
|------------------|---|
| SERIAL PORTA | • Serial loopback connector must be installed for test |
| INSTALLED OPTION | • Initiates test (<i>see Self-Test, Section 3.3.</i>) |
| CUTTER | • Lists options |
| RIBBON SAVER | • * = installed |

ADVANCED SETUP MODULES

- | | |
|-----------------|---|
| PRINT DIRECTORY | • The optional modules are available |
| PRINT FILE | Module Slot A – External Flash |
| COPY MODULE | • Prints contents of selected memory modules |
| TEST MODULE | • Prints label, font, or image from selected module |
| FORMAT MODULE | • Copies data from one module to another |
| | • Tests Read/Write operation of selected modules |
| | • Formats the selected memory modules |

3.3 Self-Test

Power On Self-Test

If the Printer's power switch is off, begin the Self-Test by using the Power-On method. With the Printer OFF, load the media (at least 4 inches wide) to be used and ribbon, (if equipped and/or desired), optionally install one of the Self-Test Plugs. Press and hold the FEED button and turn the Printer ON. Release the Feed switch after the Ribbon/Media LED indicator flashes once. The Printer will then print the two test labels and operation will continue in the Character Dump Mode.

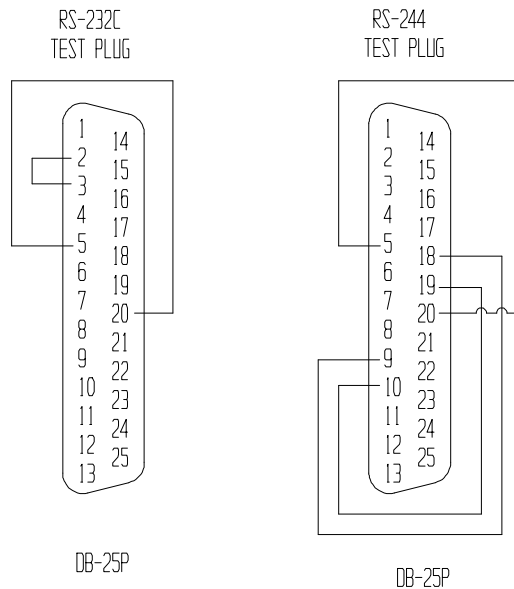


Figure 3-3 Self-Test Plugs

NOTE: After performing a Power-Up and Self-Test the Printer will be in 'Character Dump Mode'. Turn the Printer OFF momentarily, then back ON to restore normal operation.

The Self-Test may also be initiated while the power is on by simultaneously pressing the PAUSE and CANCEL buttons. Simultaneously release them and immediately press and hold the FEED button until the ribbon/media LED flashes.

NOTE: If any configuration errors are indicated by the Self-Tests, check the Printer's dip switch settings or configuration setup.

3.3.1 Test Label Examples

The first test label printed will be the Configuration Label, this label lists the Printer's configuration and status. The following sample was produced on a standard printer without the test plugs installed.

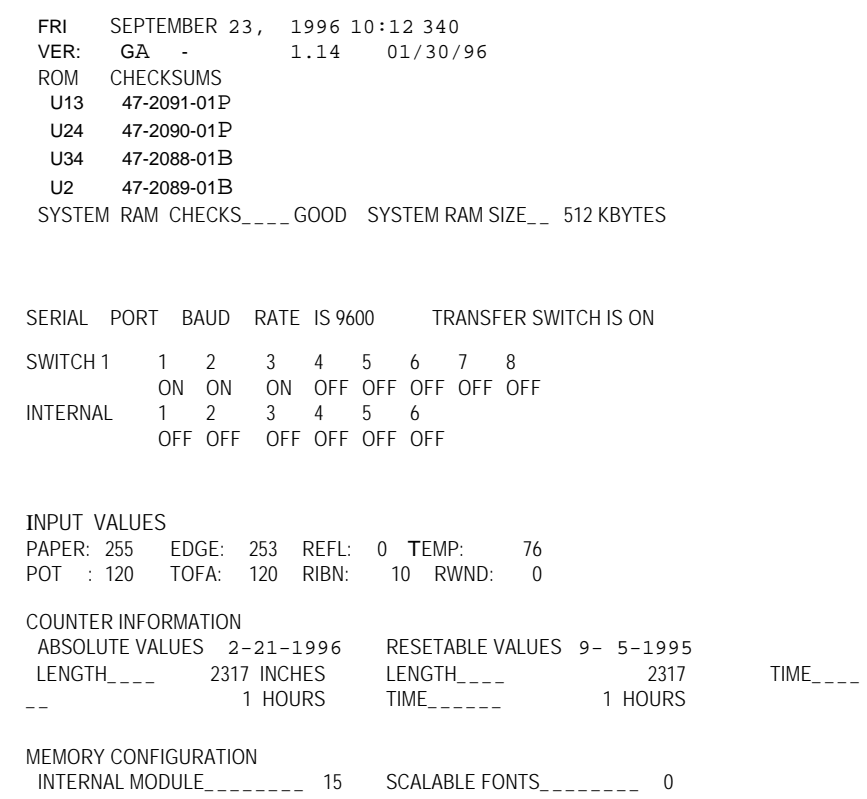
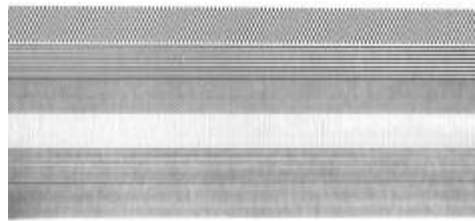
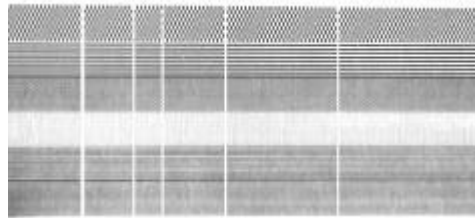


Figure 3-4 Configuration Test Label

The second of the two test labels is the Test Pattern Label. This label is used to determine whether the Printhead is in need of replacement. 'Good' and 'Bad' test pattern labels are shown in Figure 3-5.



Good test label indicates
Printhead is operating normally.



Streaks in test label indicate a
dirty or faulty Printhead.
*(See Chapter 3 for cleaning and
replacement).*

Figure 3-5 Printhead Test Label

3.3.2 Configuration Test Label

The following are explanations of the Configuration Test Label elements, top to bottom, (see *Figure 3-5*).

Rom Checksums – indicates whether the ROMs that store the Printer's program and resident fonts are 'good' or 'bad'. Good part numbers are displayed normally. Checksum values replace the part numbers to indicate an error. If either the ROM or RAM test is bad, service is required.

System Ram Checks – indicates 'good' or 'bad'.

System Ram Size – indicates the amount of available RAM in the Printer.

Thermal Transfer Switch – Should be 'on' if using a ribbon, and 'off' if in the direct-thermal mode (no ribbon).

Switch 1 – indicates the status of dip switch 1 on the rear of the printer, (see *Section 2.3.2, Table 2-3*).

Internal – indicates the status of the Printer's internal dip switch located on the main logic board (see *Table 3-1*).

Paper – this value indicates when paper is present in the sensor.

Edge and Refl – indicates when media is present at the respective sensor. These sensors tell the Printer where the start of the label is located. Refer to the Programmer's Manual when determining which sensing mode to use.

Switch Functions	1	2	3	4	5	6	7
RS-422 Disabled	OFF	OFF	OFF	X	X	X	X
RS-422 Address 1	ON	OFF	OFF	X	X	X	X
RS-422 Address 2	OFF	ON	OFF	X	X	X	X
RS-422 Address 3	ON	ON	OFF	X	X	X	X
RS-422 Address 4	OFF	OFF	ON	X	X	X	X
RS-422 Address 5	ON	OFF	ON	X	X	X	X
RS-422 Address 6	OFF	ON	ON	X	X	X	X
RS-422 Address 7	ON	ON	ON	X	X	X	X
Spare	X	X	X	OFF	X	X	X
Resettable Counter Reset	X	X	X	X	OFF	X	X
Spare	X	X	X	X	X	OFF	X
RS-422 Termination (hw)	X	X	X	X	X	X	OFF

Table 3-1 Internal Dip Switch Settings

Temp – this reading is the feedback voltage of the printhead thermistor. At power up or in an idle condition, this value should be in the range of 060 to 065. A reading of 175 is high and could decrease the life of the printhead. An average amount of printing will give readings that range from 070 to 120.

Pot – this reading comes from the darkness potentiometer located on the front panel board. It will vary from 000 (darkest) to 255 (lightest). Adjust this value for a midrange value of 128.

TOFA – (Top of Form Adjustment) determines where the first position of print begins on the label.

RIBN – this value indicates the operation of the ribbon mechanism, this value will vary.

RWND – this value indicates the operation of the internal rewind mechanism, this value will vary.

Counter Information – is the values and dates of the absolute and resettable counters.

Memory Configuration – lists the current size of the 'Internal Module' RAM in 4K byte blocks, and the 'Scalable Fonts' current cache setup for scalable font calculations.

3.3.3 Character Dump Mode

After printing the configuration test labels, the Printer will automatically enter the Character Dump Mode. This mode allows the user to input strings of data and compare them with the output data from the Printer. This label can readily uncover a buffer overflow problem identified by large gaps of data in the character string.

```
0000 02 4C 00 44 31 31 00 31 ^L.D11.1
0008 36 31 31 30 30 30 30 33 61100003
0010 32 30 30 30 31 30 46 4F 200010F0
0018 4E 54 20 36 3A 20 41 4C NT 6: AL
0020 4C 20 56 41 4C 49 44 20 L VALID
0028 20 20 20 20 20 20 20 20
0030 20 20 20 00 31 36 31 31 1611
0038 30 30 30 30 32 38 30 30 00002800
0040 30 31 30 20 20 20 20 20 010
0048 20 20 20 43 48 41 52 41 CHARA
0050 43 54 45 52 53 3A 00 31 CTERS:.1
0058 36 31 31 30 30 30 30 32 61100002
0060 34 30 30 30 31 30 23 24 400010#$
0068 25 26 28 29 2A 2B 2E 20 %&()*+.-
```

Figure 3-5 ASCII Character Dump Label

3.4 Factory Default Setup

With the Printer OFF, press and hold the FEED, CANCEL, and PAUSE buttons while turning the Printer ON. Continue to hold the buttons until the Ribbon Media LED illuminates a second time. The Printer will now be set to the 'Factory Defaults'.

3.5 Fuse Replacement

The Printer uses a 2.0 amp/250V slo-blo fuse, which is located within the voltage selection switch, just below the power switch.

- Turn off the Printer and remove the AC power cord.
- Insert a flat-bladed screwdriver in the release slot and push out the fuse holder/voltage selector switch.
- Replace the fuse with the same type and rating, (250volts, 2Amp, slo-blo).

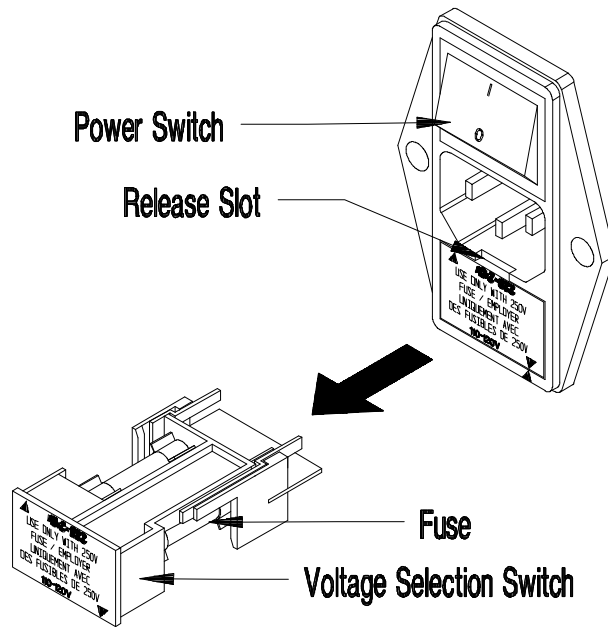


Figure 3-6 Fuse Replacement

◆ Printing Labels

4.0 Introduction

This chapter explains how to generate labels using several different methods, and how to print different bar codes. An optional Internal Batch Cartridge is available for generating label formats using the Printer as a stand-alone device.

A VT 100 or LINK MCII compatible CRT is required if the optional Internal Batch Cartridge is used to generate labels. The Internal Batch Cartridge Program works much like a PC compatible software package, but uses internal batch modules instead of a hard or floppy disk drive to store and retrieve label formats.

Labels can also be generated using RS-232 to a host computer or by using a PC with a compatible labeling software package. This chapter explains some of the basic programming commands that are required when writing programs to generate label formats.

<p>NOTE: The programming information contained in this manual is for reference purposes only. Refer to the Programmer's Manual for detailed descriptions and programming formats.</p>
--

4.1 Programming Commands

To prompt the Printer for a command sequence, the Printer must first receive a special character called an “attention getter”, which informs the Printer that it is about to receive a command and the type of command it will be. Immediate Commands, System Level Commands, and Font Loading Commands each have their own attention getter. The attention getter character is followed by a "command character" that tells the Printer what action to take.

ASCII Char.	Decimal Value	HEX Value	DOS Prompt	Attention Getter For
SOH	1	01	Ctrl A	Immediate Commands
STX	2	02	Ctrl B	System Level Commands
ESC	27	1B	Ctrl [	Bitmapped Font Loading Commands

Table 4-1 Attention Getters

When the Printer receives an "immediate" command it will stop whatever it is doing and perform that command. Commands of all types must be in the following sequence:

1. Attention Getter
2. Command Character
3. Command Parameters, (if any).

Command Character	Printer Responds?	Command
#	Y	Reset
A	Y	Send ASCII Status String to Host
B	N	Toggle Pause
C	N	Cancel
D	N	SOH Shutdown
E	Y	Send Batch Quantity
F	Y	Send Status Byte

Table 4-2 Immediate Commands

The System Level Commands are used to create formats, load and store graphic information, and control the Printer. Table 4-3 provides a brief description and format of each System Level Command character.

Char	Description	Format
A	Set time and date	FORMAT: <i>AwmmdddyhhMMjjj</i> 16 digits total <i>w</i> = 1 digit week, 1 is Monday <i>mm</i> = 2 digits for month <i>dd</i> = 2 digits for day <i>yyyy</i> = 4 digits for year <i>hh</i> = 2 digits for hour (24 hr ft) <i>MM</i> = 2 digits for minutes <i>jjj</i> = 3 digits for Julian I.D. value
a	Enable feedback characters	Returns decimal 30 after each label and 31 after each batch of labels
B	Get Printer time and date information	Print time and date to port
c	Set continuous paper length	<i>nnnn</i> = length of paper to feed per label
d	Set Printer to double buffer mode	Use to print a label while a second is formatting in memory
E	Set quantity for stored label	<i>Ennnn</i> = Set quantity for stored label
e	Select edge sensor	For "see through" media sensing, etc.
F	Form feed	Feeds one label at a time
f	Set form stop position (BACKFEED) Distance to peel off or present position	<i>fnnn</i> <i>nnn</i> = 3 digits from sensor
G	Print last label format	
I	Input graphics data block See the Programmer's Manual for format	A bank designation, an optional word length modifier, a format designation, and up to a 16-character string to identify the stored image data
i	Download scalable font	
J	Set pause for each label	
K	Extended System Commands Refer to the Programmer's Manual for proper format <i>n</i> = <i>M</i> , <i>S</i> , or <i>W</i> for set memory config. <STX> <i>KMxxxx:Syxxx:Wzzzz</i>	<i>Kn</i> <i>n</i> = <i>Q</i> - for query <i>M</i> - Set configuration <i>S</i> - Scalable font cache <i>W</i> - Label width <i>R</i> - Reset memory config. <i>f</i> - Set form stop position <STX> <i>Kfxxxx</i> defines distance between the Printhead and stop position

Table 4-3 System Level Commands

Char	Description	Format
k	Test RS-232 Port With a Y if OK	Sends character "Y" to RS-232 port
L	Enter label formatting mode	
M	Set maximum label length	4 digits (nnnn) Max. 99.99 inch.
m	Set metric flag, enter metric mode	All measurements set to metric until reset
n	Clear metric flag, return to inch mode	
O	Form edge offset (start of print position)	<i>Onnnn</i> nnnn = in/100 or mm/10
o	Cycle cutter	
P	Enter character dump mode	
p	Controlled pause	
Q	Clear all memory modules	
q	Clear module "q(A/B)"	<i>qa</i> a = Module ID, upper case
R	Ribbon Saver	<i>Rx</i> x = (Y/N) default = Dip switch or front panel (Ribbon Saver Option only)
r	Select reflective sensor	Used for "black-strip" media sensing, i.e. continuous tags, butt-cut labels. Stripe must be printed on back side of media
S	Feed rate	<i>Sr</i> r = C - W, 2.0 - 12.0 ips.
s	Set for 1 dot buffer processing. Used for full length dot buffer processing	
T	Printhead dot pattern test label	
U	Label format field replacement	
V	Software switch settings	<i>Vn</i> n = 4 -label present, 2 -Internal batch 1 -Cutter enabled
v	Firmware version information	Sends version string to Host
W	Request memory module Information	<i>Wa</i> a = F -font, G -graphic, L -label
w	Test FLASH module memory	Takes about 90 seconds
X	Set default module bank	<i>Xa</i> a = Memory Module ID, A or B
x	Delete module file	<i>xMFname</i> M = A/B module ID, F = F,G,L file type
Y	Output sensor values	Sends sensor values status to RS-232 port
y	Symbol set select	<i>ySaa</i> aa = Symbol set ID, see B-1
Z	Print internal information and dot pattern	
z	Pack module	<i>Za</i> a = Memory Module ID, upper case

Table 4-3 System Level Commands (Continued)

The **STX L** command switches the Printer from the **system level** to the **label formatting** command. All command characters after STX L are interpreted as Label Formatting Commands until terminated with E,X, or s. All label formatting commands are terminated with 0D HEX.

CC	Description	Format
:	Set cut by amount (4 digits) The cutter function will perform a cutting action after the number of labels specified	:nnnn nnnn = 4 digits of labels printed before cut. Default = 0001
A	Set format attribute	An n = 1 - XOR 2 - Transparent 3 - Opaque 5 - Inverse
C	Set column offset amount	Cnnnn nnnn = Inches/100
c	Set cut by amount (2 digits)	cnn nn = 2 cut amount
D	Set height and width dot size	h = Horiz. dot size; can be 1 or 2 v = Vert. dot size; can be 1,2, or 3 (0.005" steps) Default is "D22"
E	Terminate field generation and print label	
G	Place data in global register	
H	Enter heat setting (The amount of heat applied per dot row can be used to help control print quality)	Hnn nn = 2 digits. 1 - 30 10 is nominal and default Print contrast is relative to speed
M	Mirror text/bar code	Second transmission restores print
m	Set metric mode	
P	Print speed Enter maximum speed for print cycle, 1 character	Pa a = single char. C 2.0 ips I 5.0 ips O 8.0 ips D 2.5 ips J 5.5 ips P 8.5 ips E 3.0 ips K 6.0 ips Q 9.0 ips F 3.5 ips L 6.5 ips R 9.5 ips G 4.0 ips M 7.0 ips S 10.0 ips H 4.5 ips N 7.5 ips
p	Set label backup speed	pa a = single char. (C - I)
Q	Enter quantity of labels to print	Qnnnn nnnn = quantity
R	Set row offset amount	Rnnnn nnnn = row offset
r	Recall stored label format	rnn...n nn...n label name of up to 16 char. terminated by CR
S	Slew speed Sets maximum speed for label feeding. 1 digit.	Sa a = single character C 2.0 ips I 5.0 ips O 8.0 ips D 2.5 ips J 5.5 ips P 8.5 ips E 3.0 ips K 6.0 ips Q 9.0 ips F 3.5 ips L 6.5 ips R 9.5 ips G 4.0 ips M 7.0 ips S 10.0 ips H 4.5 ips N 7.5 ips

Table 4-4 Label Formatting Commands

CC	Description	Format
s	Store label format in module	<i>sann...n</i> a - destination module A Memory Module A B Memory Module B C Default memory bank D Memory module D E Memory module E <i>nn...n</i> - label name (16 char. max)
T	Set field data line terminator	<i>Tnn</i> - <i>nn</i> = 00-FF, 2 digit ASCII
U	Make previous field a string replace field	
X	Terminate label formatting node	
Z z	Zero (0) conversion to "O" to eliminate slash (/)	
+	Make last field entered increment numeric	<i>+pii</i> Make last entered field incrementing <i>p</i> = Zero fill character <i>ii</i> = Data added to field
-	Make last field entered decrement numeric	<i>-pii</i> Make last entered field decrementing <i>p</i> = Zero fill character <i>ii</i> = Data subtracted from field
>	Make last field entered increment alphanumeric	<i>>pii</i> Make last entered field incrementing. 0 - Z <i>p</i> = Zero fill character <i>ii</i> = Data added to field
<	Make last field entered decrement alphanumeric	<i><pii</i> Make last entered field decrementing. 0 - Z <i>p</i> = Zero fill character <i>ii</i> = Data subtracted from field
^	Set count by amount	<i>^nn</i> Specifies the number of labels printed before field data is updated <i>nn</i> = 2 digits, number of labels

Table 4-4 Label Formatting Commands (Continued)

There are two special commands used by the Printer, the **STX S** (Recall Global Data) and the **STX T** (Print Date and Time) commands. Unlike the other Label Format Commands, which follow the STX L command, these special commands are entered directly into the data field.

Character	Description
<STX>S	Recall global data and place in field.
<STX>T	Print time and date.

Table 4-5 Special Label Formatting Commands

Bitmapped font loading commands are usually generated by font creation software. However, the assigned font ID number command must be sent to the Printer before the font file. Refer to Table 4-6 for the font loading command characters.

The downloaded font will be stored in the "default" module, (see STX X).

Command Character	Description	Format
*c###D	Assign Font ID Number	<ESC>*c###D ### = font ID Number 100 to 999
)s###W	Font Descripton	<ESC>)s#W # = Bytes of Font Descriptor Data
*c###E	Character Code	<ESC>*c###E # = ASCII Value of Character
(s#W	Character Download Data	<ESC>(s###Wnn...n # = Bytes of Bit-mapped Data nn..n = Bit mapped data

Table 4-6 Bitmapped Font Loading Commands

4.2 Programming Example

The following ASCII text file will generate the label shown in Figure 4-1.

```
<STX>L<CR>  
H07<CR>  
D11<CR>  
19110080100002510K OHM 1/4 WATT<CR>  
1a6210000000050590PCS<CR>  
E
```



Figure 4-1 Sample Label

4.3 Printing Bar Codes

The example shown below prints out a Code 3 of 9 bar code with a wide to narrow bar ratio of 3:1, and can be used to print any of the bar codes shown in Appendix B by altering the examples fields. Refer to Figures 4-2 and 4-3 for a brief explanation of the data fields.

```
<STX>L<CR>  
D11<CR>  
1A93040001501000123456789<CR>  
121100000000100Barcode A<CR>  
E
```



Field	DESCRIPTION
Rotation	1 = 0 deg. • 2 = 90 deg. • 3 = 180 deg. • 4 = 270 deg.
Bar Code/Font ID	Any valid font character or bar code type. Bar codes automatically select bar code field format. Bar code types designated by uppercase ALPHA letters print with human-readable interpretations. Lowercase ALPHA bar code fonts print as bars only. Font designated by 0 - 9.
Width multiplier	Represents the number of times the dot tables are multiplied for the selected font or the specific width for Bar Codes. .005 increments. They both accept 1-9 and A-K. For UPC and 128 fonts, only 1,2,3,4,6, & 8 are valid when interpretation is printed.
Height	Must be 3 digits. 001-999 (in/100 or mm/10)
Row	Must be 4 digits. 0000-9999 (in/100 or mm/10)
Column	Must be 4 digits. 0000-0410 (in/100 or mm/10)
Data string	ASCII printable data for font/bar code selected. Terminate with a <CR>.

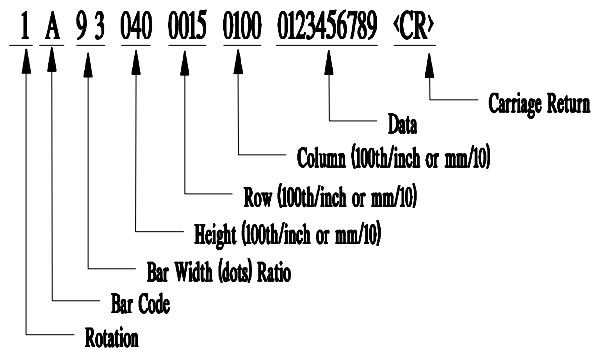


Figure 4-2 Example line 3

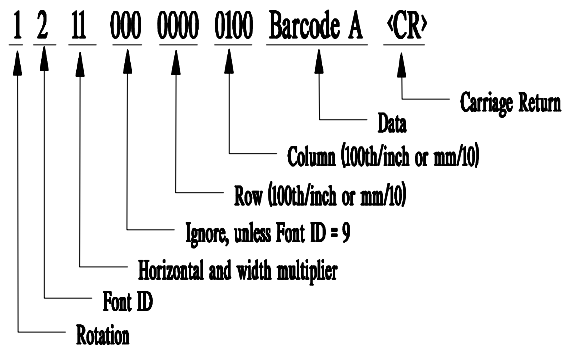


Figure 4-3 Example line 4

4.4 Printing Lines and Boxes

Lines and boxes can be created by requesting font “X”. The horizontal and vertical multipliers, and row/column position work with the line and box routines in the same manner as human-readable fonts. The format of the data area is as follows:

LINES: Lhhhvvv

L = “L” specifies line drawing
hhh = horizontal width of line
vvv = vertical height of line

LINES: lhhhhvvvv

l = “l” specifies line drawing
hhhh = horizontal width of line
vvvv = vertical height of line

BOXES: Bhhhvvvbbbsss

B = “B” specifies box drawing
hhh = horizontal width of box
vvv = vertical height of box
bbb = thickness of bottom and top box edges
sss = thickness of sides of box

BOXES: bhhhhvvvvbbbssss

b = “b” specifies box drawing
hhhh = horizontal width of box
vvvv = vertical height of box
bbbb = thickness of bottom and top box edges
ssss = thickness of sides of box

◆ Maintenance and Adjustments

5.0 Introduction

This chapter contains information about maintaining your Printer, troubleshooting tips, solutions, and Printer adjustment information.

5.1 Printer Maintenance schedules

If your Printer is equipped with an optional Rotary Cutter, it is recommended that the cutter's blades are cleaned every 25,000 cuts. The blades in the Rotary Cutter, although reversible, can not be sharpened and must be replaced if they become dull.

The Media Path and Printhead should be cleaned each time a new roll of media is installed in the Printer.

The Tear Bar can become gummed up from the media backing. The Tear Bar should be cleaned with Isopropyl Alcohol when build-up is noticeable.

5.1.1 Cleaning the Printhead

The thermal printhead should be cleaned periodically, or when the print quality is affected by a dirty printhead. Follow the instructions outlined below when cleaning is required.

1. Turn off the Printer and open the Side Access Cover.
2. Unlatch the Printhead by rotating the Printhead Latch counter-clockwise.
3. Lower the Hinge Plate.
4. Using a cotton swab dipped in Isopropyl Alcohol, clean the printhead by rubbing the cotton swab left and right along the Printhead Element. Care should be taken not to scratch the Printhead with the cotton swab.
5. Raise the Hinge Plate and engage the Printhead Latch by rotating it clockwise.
6. Close the Side Access Cover.



CAUTION

Allow the printhead surface to cool 2 – 3 minutes before cleaning. Do not touch the printhead with your fingers or lubricant of any kind.

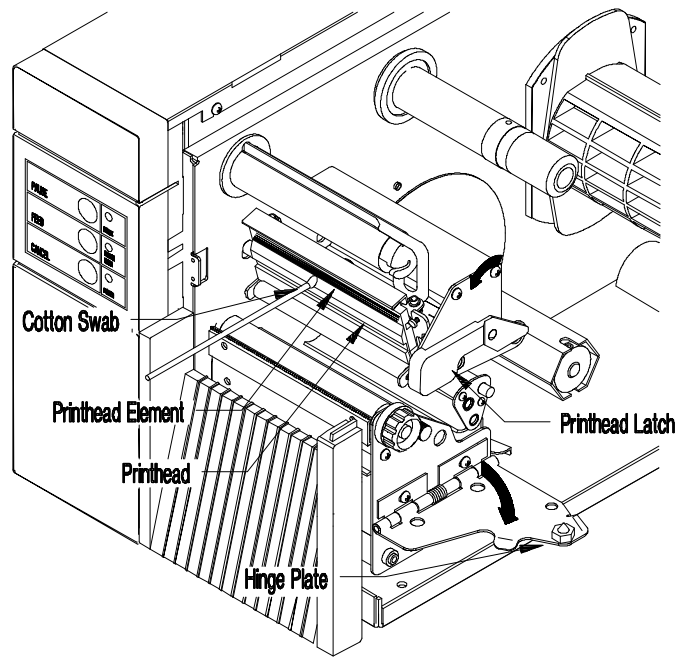


Figure 5-1 Cleaning the Printhead

5.2 Troubleshooting

This section identifies some causes and solutions to specific problems that may effect the Printer.

1) The Printer prints strange characters or garbage instead of the label:

Possible cause and solution:

- The Printer is in the dump mode, perform a reset by pressing and releasing the PAUSE and CANCEL switches simultaneously, or by turning the Printer off and back on again.
- The Printer is set up for 8 data bits but the host PC is set up for 7 data bits, see Section 2.3.2, (or 3.2 if equipped with optional LCD/Keypad front panel) for instructions.

2) The Printer does not print:

Possible cause and solution:

- The media is incorrectly loaded , (*see Section 2.5*).
- The Printhead is incorrectly latched, (*see Section 2.5*).
- If the Direct Thermal Mode is selected, make sure that direct thermal media is installed, (*see Section 3.1 or 3.2*).
- The Media Sensor is incorrectly adjusted, re-adjust the sensor, (*see Section 5.3.2*).
- The Media Sensor may be bad, return the Printer for service.

3) The media slips or does not properly advance:

Possible cause and solution:

- The Head Level Adjustment Knob setting is adjusted too high, re-adjust the Head Level Adjustment Knob, (*see Section 5.3.1*).
- The Platen Roller is dirty, clean the Platen Roller.

4) Uneven printing or print too light:

Possible cause and solution:

- The Hinge Plate is open or unlatched, re-latch the hinge plate, (*see Section 5.1, steps 6, 7, and 8*).
- The Head Level Adjustment Knob setting is adjusted too high, re-adjust the head level adjustment knob, (*see Section 5.3.1*).
- The darkness is adjusted too low, readjust.

5) Poor print quality:

Possible cause and solution:

- The Printhead is dirty, clean the printhead, (*see Section 5.1*).
- The wrong ribbon/paper combination is being used, use a different type of ribbon and/or paper.
- The Printhead temperature is too high or too low. Use software control to adjust the heat settings or darkness via the optional LCD/Keypad Front Panel.
- The Printhead is bad, (*see Section 5.3.3*).

6) No display – power light is on (LCD/Keypad front panel):

Possible cause and solution:

- Display contrast set too low, turn the contrast adjustment clockwise until the display appears.
- The LCD display is defective, return the Printer for service.

5.2.1 Optional LCD/Keypad Front Panel Alarms

If the Printer is equipped with the Optional LCD/Keypad Front Panel, it has built in monitors for the Printer status and stock conditions. The alarm messages will be displayed on the front panel LCD display indicating the present status of the Printer, stock levels, or whether the Printer's electronics have detected an error condition.

LCD Display	Alarm Description
PROM FAULT	Power up initialization detected a PROM failure, call for service.
RAM FAULT	Power up initialization detected a RAM failure, call for service.
RTC RAM FAULT	The RTC Non Volatile RAM failed its checksum test, call for service.
PRINT HEAD FAULT	The Thermal Printhead Control Circuit failed, call for service.
ADC FAULT	The Analog to digital converter failed, call for service.
TOF FAULT	The Printer failed to find the top of form position. Possible causes: <ul style="list-style-type: none">• Defective stock• Maximum Label Length, (set from communications or front panel), is smaller than one form.
OUT OF STOCK	The Printer is out of stock.
RIBBON FAULT	The ribbon system detected a fault Possible causes: <ul style="list-style-type: none">• Out of ribbon• Ribbon motion was prohibited• Obstructions in the paper movement may cause ribbon faults.

LCD Display

Alarm Description

CUTTER FAULT

The cutter operation failed

Possible causes:

- Cutter not installed
- Jam in cutter
- Defective cutter hardware, call for service.

Warning:

Turn **OFF** the Printer and remove the AC power cord before attempting to remove any jam or obstruction from the cutter.

RIB SAVER FAULT

The Ribbon Saver operation failed

Possible causes:

- Obstruction in ribbon area
- Ribbon Saver Option is not installed
- Defective ribbon saver hardware, call for service.

CUTTER NotEQP

The Cutter Option is enabled and the cutter is not present

RIBSVR NotEQP

The Ribbon Saver Option is enabled and the ribbon saver is not present

5.3 Mechanical Adjustments

The following mechanical adjustments should be performed only when required, additional sections that follow provide detailed descriptions for each adjustment.

- Media Width adjustment, (*see Section 5.3.1*).
- Media sensor adjustment, (*see Section 5.3.2*).
- Printhead Replacement, (*see Section 5.3.3*).

5.3.1 Media Width Adjustment

This adjustment allows the use of narrower media, (less than 4 inches wide) in the Printer.

1. Rotate the Head Level Adjustment Knob clockwise to raise the minimum printhead to platen position for narrow media.

NOTE: Rotate the head level adjustment knob counterclockwise to lower the minimum printhead to position.

2. Install the media, (*see Section 2.5*).
3. Print a Self-Test Label, (*see Section 3.3*).

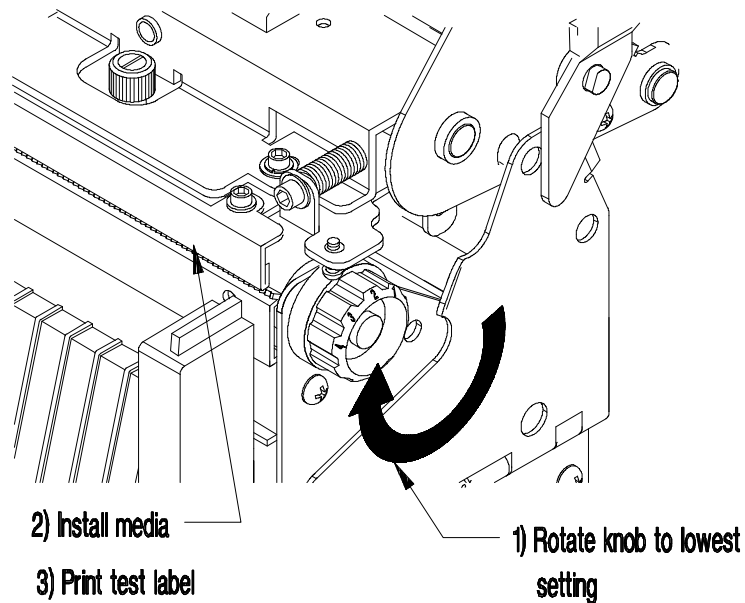


Figure 5-2 Media Width Adjustment

4. If the print quality is unacceptable, repeat steps 1 and 3 until the print quality is acceptable.

5.3.2 Media Sensor Adjustment

To detect the media's edge for different media widths, the Media Sensor can be adjusted across half the media path. The Media Sensor may require adjustment when changing to a media of a different width. The gauge behind and below the printhead can be viewed for making this adjustment

1. Open the Side Access Cover.
2. Make sure that the media guide is moved to the edge of the media.
3. Rotate the Media Sensor Adjustment knob clockwise to adjust for narrower media and counterclockwise for standard width media.

NOTE: Do not force or over tighten the Media Sensor Adjustment Knob.

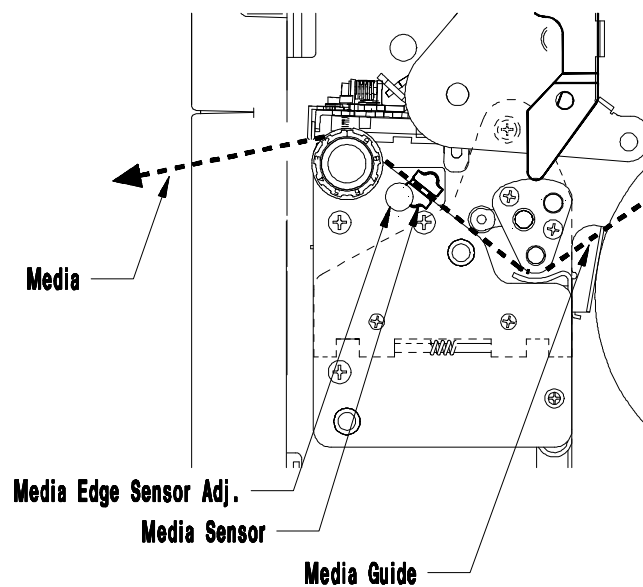


Figure 5-3 Media Sensor Adjustment

5.3.3 Printhead Replacement

The Printhead is operator replaceable and can be replaced with a flat-bladed screw driver. If dot patterns on the Configuration Test Label indicate lines of missing dots, (as shown in Figure 5-4), the printhead is dirty or may require replacement.

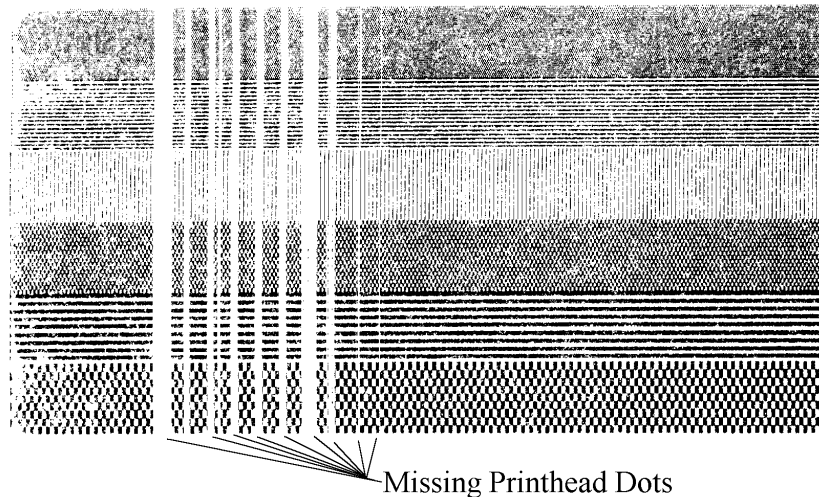


Figure 5-4 Configuration Test Label

A single missing dot, or two non-adjacent dots, does not indicate a bad printhead; however, multiple adjacent missing dots do indicate a bad printhead.

Removal:

Follow the procedure below when replacing the printhead, (see Figure 5-5).

1. Turn off the Printer and open the Side Access Cover.
2. Rotate the Printhead Latch downward to unlatch the Printhead, then raise the Printhead to an upright position and lower the Hinge Plate.

3. Using a flat-bladed screw driver, loosen the Thumb Screw and lower the Printhead from the Printhead Mounting Plate.
4. Using the screw driver, push against the Printhead connector's guide to free the connector from its socket, then remove the Printhead.

Replacement:

5. Push the new Printhead into the connector. Align the Printhead with the alignment pins, (located on the bottom of the Printhead Mounting Plate), and secure with the Thumb Screw, (do not over tighten).
6. The Printhead must be cleaned if touched by any fingers or oils, (*see Section 5.1.1*).
7. Lower the Printhead, raise the Hinge Plate, and rotate the Printhead Latch until it is closed.

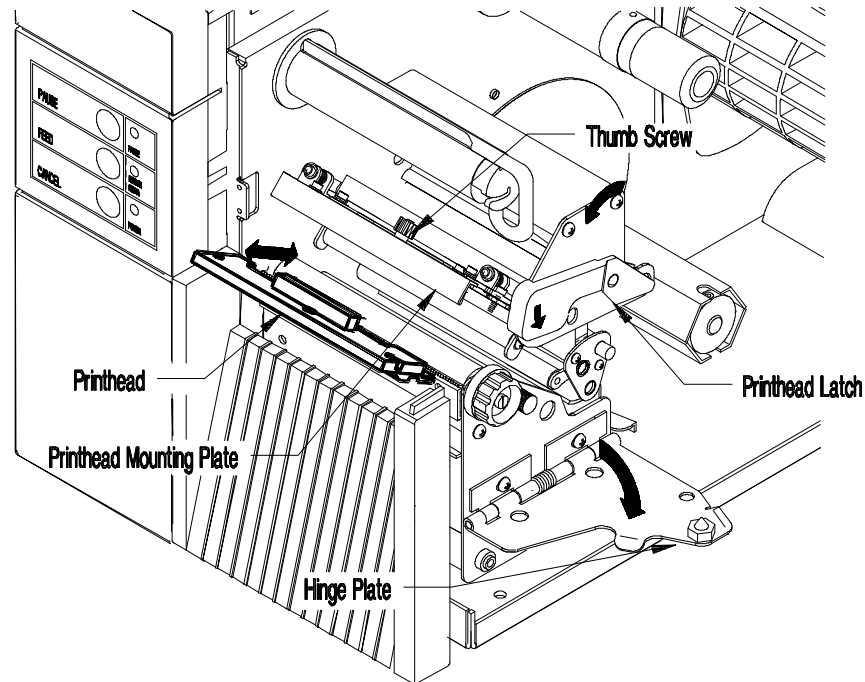


Figure 5-5 Printhead Removal

Appendix A

ASCII Control Code Chart

Char	Dec	Hex	Char	Dec	Hex	Char	Dec	Hex	Char	Dec	Hex
NUL	0	00		32	20	@	64	40	`	96	60
SOH	1	01	!	33	21	A	65	41	a	97	61
STX	2	02	"	34	22	B	66	42	b	98	62
EXT	3	03	#	35	23	C	67	43	c	99	63
EOT	4	04	\$	36	24	D	68	44	d	100	64
ENQ	5	05	%	37	25	E	69	45	e	101	65
ACK	6	06	&	38	26	F	70	46	f	102	66
BEL	7	07	>	39	27	G	71	47	g	103	67
BS	8	08	(	40	28	H	72	48	h	104	68
HT	9	09	)	41	29	I	73	49	i	105	69
LF	10	0A	*	42	2A	J	74	4A	j	106	6A
VT	11	0B	+	43	2B	K	75	4B	k	107	6B
FF	12	0C	,	44	2C	L	76	4C	l	108	6C
CR	13	0D	-	45	2D	M	77	4D	m	109	6D
SO	14	0E	.	46	2E	N	78	4E	n	110	6E
SI	15	0F	/	47	2F	O	79	4F	o	111	6F
DLE	16	10	0	48	30	P	80	50	p	112	70
DC1	17	11	1	49	31	Q	81	51	q	113	71
DC2	18	12	2	50	32	R	82	52	r	114	72
DC3	19	13	3	51	33	S	83	53	s	115	73
DC4	20	14	4	52	34	T	84	54	t	116	74
NAK	21	15	5	53	35	U	85	55	u	117	75
SYN	22	16	6	54	36	V	86	56	v	118	76
ETB	23	17	7	55	37	W	87	57	w	119	77
CAN	24	18	8	56	38	X	88	58	x	120	78
EM	25	19	9	57	39	Y	89	59	y	121	79
SUB	26	1A	:	58	3A	Z	90	5A	z	122	7A
ESC	27	1B	;	59	3B	[	91	5B	{	123	7B
FS	28	1C	<	60	3C	\	92	5C	|	124	7C
GS	29	1D	=	61	3D	]	93	5D	}	125	7D
RS	30	1E	>	62	3E	^	94	5E	~	126	7E
US	31	1F	?	63	3F	_	95	5F		127	7F

Char	Dec	Hex	Char	Dec	Hex	Char	Dec	Hex	Char	Dec	Hex
Ç	128	80	á	160	A0		192	C0	Ó	224	E0
ü	129	81	í	161	A1		193	C1	ß	225	E1
é	130	82	ó	162	A2		194	C2	Ô	226	E2
â	131	83	ú	163	A3		195	C3	Ò	227	E3
ä	132	84	ñ	164	A4		196	C4	õ	228	E4
à	133	85	Ñ	165	A5		197	C5	Õ	229	E5
â	134	86	ª	166	A6	ā	198	C6	μ	230	E6
ç	135	87	º	167	A7	Ä	199	C7	þ	231	E7
ê	136	88	¿	168	A8		200	C8	þ	232	E8
ë	137	89	®	169	A9		201	C9	Ů	233	E9
è	138	8A		170	AA		202	CA	Ů	234	EA
ï	139	8B	1/2	171	AB		203	CB	Ů	235	EB
î	140	8C	1/4	172	AC		204	CC	ý	236	EC
ì	141	8D	¡	173	AD		205	CD	Ý	237	ED
Ä	142	8E		174	AE		206	CE		238	EE
Å	143	8F		175	AF		207	CF		239	EF
É	144	90		176	B0	ð	208	D0		240	F0
æ	145	91		177	B1	Ð	209	D1	±	241	F1
Æ	146	92		178	B2	Ê	210	D2		242	F2
ô	147	93		179	B3	Ë	211	D3	3/4	243	F3
ö	148	94		180	B4	Ë	212	D4		244	F4
ò	149	95	Á	181	B5	l	213	D5		245	F5
û	150	96	Â	182	B6	Í	214	D6	÷	246	F6
ù	151	97	Ã	183	B7	Î	215	D7	,	247	F7
ÿ	152	98	©	184	B8	Ï	216	D8	°	248	F8
Ö	153	99	¹	185	B9		217	D9	²	249	F9
Ü	154	9A		186	BA		218	DA	³	250	FA
ø	155	9B		187	BB		219	DB		251	FB
£	156	9C		188	BC		220	DC		252	FC
Ø	157	9D	¢	189	BD		221	DD		253	FD
x	158	9E	¥	190	BE	Ï	222	DE		254	FE
f	159	9F		191	BF		223	DF		255	FF

The printable characters shown are from the font 9, internal Triumvirate, character set.

NOTE: For the hardware handshake XON/XOFF commands
XON = (DC1) **XOFF** = (DC3)

Appendix B

Available Fonts and Bar Codes

All character fonts and bar codes available with the Printer are described in this section. Each font and bar code has a name associated with it for use in programming. Human-readable fonts have numeric names while bar code fonts have alpha names. Uppercase alpha names will print bar codes with human-readable interpretations, while lowercase alpha names will print bar codes only.

Fonts 0 through 8 use the slash zero (Ø) conventions for distinguishing between the zero and the letter O. The slash can be removed with the label formatting command Z. These fonts are non-proportional (monospaced) fonts, all of the characters take up the same amount of space when printed. This is helpful when using variable data in a fixed area. The sizes of these fonts are shown in Table B-1.

The Triumvirate font number 9 is a proportional font, each character will take up a different amount of space when printed. For example, the letter W will be larger than the letter I.

There are 29 scalable font symbol sets that are accessible:

- (US) ISO 6: ASCII Symbol Set, font code S00
- (DN) ISO 60 Danish / Norwegian Symbol Set, font code S00
- (IT) ISO 15: Italian Symbol Set, font code S00
- (GR) ISO 21: German Symbol Set, font code S00
- (FR) ISO 69: French Symbol Set, font code S00
- (E5) ISO 8859/5 Latin 5 Set, font code S00
- (E2) ISO 8859/2 Latin 2 Set, font code S00
- (E1) ISO 8859/1 Latin 1 Symbol Set, font code S00
- (DT) DeskTop Symbol Set, font code S00

For a complete list of the scalable fonts symbol sets, ASCII codes, and charts, please refer to the Programmer's Manual.

B.1 Human-Readable Fonts

Font Matrix Sizes				Charac. Per Inch
Font	Dot Height	Dot Width	Dot Spacing	203 DPI
0	7	5	1	33.83
1	13	7	2	22.56
2	18	10	2	16.92
3	27	14	2	12.69
4	36	18	3	9.67
5	52	18	3	9.67
6	64	32	4	5.64
7	32	15	5	10.15
8	28	15	5	10.15

Table B-1 Human-Readable Font Sizes

Font	Valid ASCII Characters, Decimal
0	32-126
1	32-168, 171, 172, 225
2	32-168, 171, 172, 225
3	32, 35-38, 40-58, 65-90, 128, 142-144, 146, 153, 154, 156, 157, 165, 168, 225
4	32, 35-38, 40-58, 65-90, 128, 142-144, 146, 153, 154, 156, 157, 165, 168, 225
5	32, 35-38, 40-58, 65-90, 128, 142-144, 146, 153, 154, 156, 157, 165, 168, 225
6	32, 35-38, 40-58, 65-90, 128, 142-144, 146, 153, 154, 156, 157, 165, 168, 225
7	32-126
8	32, 48-57, 60, 62, 67, 69, 78, 83, 84, 88, 90
9	32-126, 128-169, 171-173, 181-184, 189, 190, 198, 199, 208-216, 222, 224-237, 241, 243, 246-250

Table B-2 Valid Human-Readable Font ASCII Characters

0 - Identifies a 96-character alphanumeric font.

```
Font 0:
!"#$%&'()*+,-./
0123456789:;<=>?@
ABCDEFGHIJKLMNPO
QRSTUVWXYZ[\]^_`
abcdefghijklmnopqrstuvwxyz
{}~
```

1 - Identifies a 145-character uppercase and lowercase alphanumeric font that includes descenders and ascenders.

```
Font 1:
!"#$%&'()*+,-./0123456789:;<=>?@
ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^_`
abcdefghijklmnopqrstuvwxyz
{}~
ÇüéååååçéëëïïiïÆÆffôôô
ûûÿ00æf0×fa iouñÑa9ç¼ß
```

2 - Identifies a 138-character alphanumeric upper and lowercase font.

```
Font 2:
!"#$%&'()*+,-./0123456789:;<=>?@
ABCDEFGHIJKLMNPOQRSTUVWXYZ[\]^_`
abcdefghijklmnopqrstuvwxyz
{}~
ÇüéååååçéëëïïiïÆÆffôôô
ûûÿ00æf0×fa iouñÑa9ç¼ß
```

3 - Identifies a 62-character alphanumeric uppercase font.

```
FONT 3:
!"#$%&'()*+,-./0123456789:
ABCDEFGHIJKLMNPOQRSTUVWXYZ
ÇÄÅÉÖÜ£0Ñ¿ß
```

4 - Identifies a 62-character alphanumeric uppercase font.

```
FONT 4:
!"#$%&'()*+,-./0123456789:
ABCDEFGHIJKLMNPOQRSTUVWXYZ
ÇÄÅÉÖÜ£0Ñ¿ß
```

5 - Identifies a 62-character alphanumeric upper case font.

```
FONT 5:
!"#$%&'()*+,-./0123456769:
ABCDEFGHIJKLMNPOQRSTUVWXYZ
ÇÄÅÉÖÜ£0Ñ¿ß
```

6 - Identifies a 62-character alphanumeric uppercase font.

FONT 6:
\$ % & () * + . - . /
0 1 2 3 4 5 6 7 8 9 :
A B C D E F G H I J K L
M N O P Q R S T U V W X Y Z
Ç Å Ä Ö Ù £ Ø Ñ ¿ ß

7 - Identifies a font that prints OCR-A, size I.

Font 7:
! " # \$ % & ' () * + , - . /
0 1 2 3 4 5 6 7 8 9 : ; < = > ? @
A B C D E F G H I J K L M N O
P Q R S T U V W X Y Z [\] ^ _ `
a b c d e f g h i j k l m n o
p q r s t u v w x y z { | } ~

8 - Identifies a font that prints OCR-B, size III.

Font 8:
0 1 2 3 4 5 6 7 8 9
< > C E N S T X Z I

9 - Identifies the internal Triumvirate font.

6 pt ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz0123456789
8 pt ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz
10 pt ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz
12 pt ABCDEFGHIJKLMNOPQRSTUVWXYZabc
14 pt ABCDEFGHIJKLMNOPQRSTUVWXYZ
18 pt ABCDEFGHIJKLMNOPQR
24 pt ABCDEFGHIJKLM
30 pt ABCDEFGHIJ
36 pt ABCDEFG
48 pt ABCD

B.2 Bar Code Fonts

Font	Bar Code	Length	Cksum	Valid Characters
A	3 of 9	Varies	No	0-9, A-Z, -. *\$/% and space char.
B	UPC-A	11 digits	Yes	0-9
C	UPC-E	6 digits	Yes	0-9
D	Interleaved 2 of 5	Varies	No	0-9
E	Code 128 (A,B,C)	Varies	M-103	entire 128 ASCII character set.
F	EAN-13	12 digits	Yes	0-9
G	EAN-8	7 digits	Yes	0-9
H	Health Industry Bar Code (HIBC)	Varies	M-43	0-9, A-Z, -\$/ . The Host must supply leading "+"s
I	Codabar	Varies (Min. 3)	No	0-9, -, ., \$, :, /, +, and the start/stop codes: a, b, c, and d.
J	Interleaved 2 of 5 without Bars	Varies	M-10	0-9
K	MSI Plessey	Varies	M-10	0-9. If + is last character, additional MSI checksum will be added to the bar code in place of the + character.
L	Interleaved 2 of 5 (UPC CASE)	13	M-10	0-9
M	UPC 2 digit add.	2 digits	Yes	0-9
N	UPC 5 digit add.	5 digits	Yes	0-9
O	Code 93	Varies	No	All 128 ASCII characters
p	Postnet	Varies	Yes	0-9
Q	UCC/EAN Code 128	19 digits	Yes	0-9
R	UCC/EAN Code 128 K-MART NON EDI	18 digits	Yes	0-9
S	UCC/EAN Code 128 Random Weight	Varies. At least 34 digits	Yes	0-9
T	Telepen	Varies	Yes	All 128 ASCII characters
u	UPS MaxiCode	84	Yes	0-9, A-Z
v	FIM	1 char.	No	A, B, C, or D
z	PDF-417	Varies	Yes	All ASCII characters

Table B-3 Valid Bar Code Font ASCII Characters



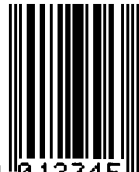
0123456789

Barcode A



012345678905

Barcode B



00123457

Barcode C



0123456790

Barcode D



01234567890

Barcode E



0123456789012

Barcode F



01234565

Barcode G



+012345678900

Barcode H



01234567890

Barcode I



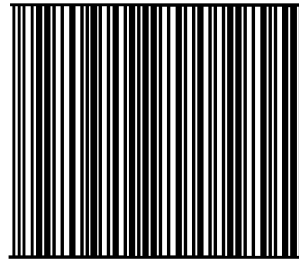
012345678905

Barcode J



01234567890

Barcode K

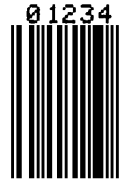


0 12 34567 89012 8

Barcode L



Barcode M



Barcode N



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Barcode O



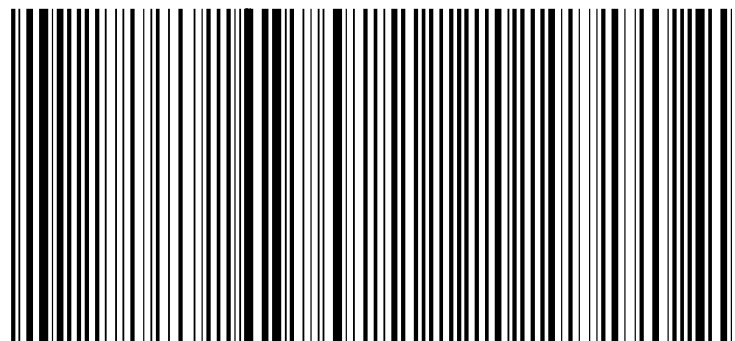
Barcode P



Barcode Q

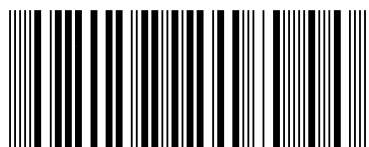


Barcode R



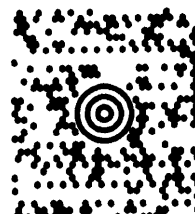
01 10073675029260 11 930420 3202 001800 21 10123456

Barcode S



ABCDEF

Barcode T



Barcode u



Barcode v



Barcode z

Appendix C

Error Codes

The most common error codes transmitted by the Printer are described below.

Lower case “c”	Printer received a data byte from the host that contains a framing error (corrupted) due to noise.
Lower case “e”	Memory module won't clear. Retry after a <STX> W command.
Lower case “v”	Input buffer overflow.
Upper case “I”	This means that an invalid command sequence was sent to the Printer. The Printer did not understand the command sequence and terminated the command interpreter.
Upper case “R”	This code will be sent every time the Printer is turned on, this means there was a hardware reset.
Upper case “T”	This means that the Printer has had a watchdog time-out condition. This is how a software reset occurs. A software reset is made by sending the command sequence to the Printer or by doing a front panel reset.
BELL HEX “07”	This is usually returned on a corrupt image download, or if you try to load an image that is already installed in the module.

◆ Appendix D

Support Services

How to reach us

For questions relating to the mechanical operation of Brady equipment you already own, contact the Brady Technical Solution Center at 1-800-643-8766, (fax) 414-358-6767, or by E-mail at bradyts@execpt.com.

Technical Support

Sometime during the life of your Brady equipment you may find yourself in need of technical assistance. We provide fully-trained specialist to answer any questions that you may have.

Technical Support Service via Telephone

Before you call: Misunderstanding instructions or omitting a step are the most common sources of error. Please consult the manual and use the Table of Contents and Appendixes for help.

Be Prepared: Only with ALL of the information requested can we give you accurate and fast assistance. Also, you should be able to answer the following questions when you call:

- Does the Printer perform all the Self-Test functions properly?
- Does the Printer work properly with some equipment but not with others?
- Are the cables the same? Were the configuration settings changed?
- Is the problem limited to one label, or does it occur on all of the labels.

The Technical Solution Center is available Monday – Friday, 7:00 a.m. to 7:00 p.m. CST, at 1-800-643-8766.

For technical support service in Europe, please call your local Brady agency or distributor. You can also contact the Brady Technical Center in Belgium at 32/ (0)52/45.79.94.

Technical Support via E-Mail or Fax

If you prefer to seek assistance in writing, please E-mail or fax a detailed description of your problem to the E-Mail address or fax number shown below. We recommend using the included customer service form that is on page E-2. Enclose any sample printouts that might illustrate the problem.

FAX: (414) 358-6767 or E-Mail: bradyts@execpc.com

W.H. Brady Company Customer Service Form

Complete this form before requesting technical assistance.

Serial Number: _____

Model Number: _____

(Be specific, include ALL letters and numbers)

Company: _____

Address: _____

City: _____

State, Zip: _____

Phone: (____) _____

Contact: _____

Hours available for return call: _____

Hardware interface type: _____

Unit interfaced with: _____

Description of problem, including actions taken just prior to problem occurring:

Product Service and Support Programs

At Brady, our service and support goal is to keep your printer performing optimally. Our service department provides a broad range of service options and are your expert sources for your support and maintenance needs. If you find yourself in need of technical assistance or repair service, our Technical Solutions Center stands ready with answers to any questions you may have.

Appendix E

Warranty Information

Brady

Limited Warranty Statement

Bradyprinter THT Model

Printer

Brady warrants to Purchaser that under normal use and service, the Bradyprinter THT Model, (with the exception of the thermal printhead) purchased hereunder shall be free from defects in material and workmanship for a period of (365) days from the date of shipment by Brady.

Expendable and/or consumable items or parts such as lamps, fuses, labels and ribbons are not covered under this warranty. This warranty does not cover equipment or parts which have been misused, altered, neglected, handled carelessly, or used for purposes other than those for which they were manufactured. This warranty also does not cover loss, damages resulting from accident, or damages resulting from unauthorized service.

Thermal Printhead

This warranty is limited to a period of ninety (90) days, or 1,000,000 linear inches of use, whichever comes first, for the Bradyprinter THT Model. This ninety (90) day warranty is valid only if a Brady-approved thermal or thermal transfer label media is used, as defined in the then current Brady list of Approved Thermal/Thermal Transfer Media, a copy of which is available from Brady. Failure to use Brady-approved media is justification for invalidation of this thermal printhead warranty. This warranty does not cover Printheads which have been misused, altered, neglected, handled carelessly, or damaged due to improper cleaning or unauthorized repairs.

Warranty Service Procedures

If a defect should occur during the warranty period, the defective unit shall be returned, freight and insurance prepaid, in the original shipping containers, to Brady at: 6555 Good Hope Road, Milwaukee, WI 53223. An RMA (Return Material Authorization) number must be issued before the product can be returned. To open an RMA please call Brady's customer service department at 1-800-537-8791. Please include your RMA number on the outside of the box and on the shipping document. Include a contact name, action desired, a detailed description of the problem(s), and examples when possible with the defective unit. Brady shall not be responsible for any loss or damages incurred in shipping. Any warranty work to be performed by Brady shall be subject to Brady's confirmation that such product meets Brady's warranty. In the event of a defect covered by its warranty, Brady will return the repaired or replaced product to the Purchaser at Brady's cost.

With respect to a defect in hardware covered by the warranty, the warranty shall continue in effect until the end of the original warranty period, or for sixty (60) days after the repair or replacement, whichever is later.

General Warranty Provisions

Brady makes no warranty as to the design, capability, capacity or suitability of any of its hardware, supplies, or software.

SOFTWARE IS LICENSED ON AN 'AS IS' BASIS WITHOUT WARRANTY. EXCEPT AND TO THE EXTENT EXPRESSLY PROVIDED HEREIN, AND IN LIEU OF ALL OTHER WARRANTIES, THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Purchaser shall be solely responsible for the selection, use, efficiency and suitability of Brady's products.

Limitation of Liability

IN NO EVENT SHALL BRADY BE LIABLE FOR ANY INDIRECT, SPECIAL, OR CONSEQUENTIAL DAMAGES OR LOST PROFITS ARISING OUT OF OR RELATING TO BRADY'S PRODUCTS, OR THE PERFORMANCE OR NONPERFORMANCE THEREOF, EVEN IF BRADY HAS BEEN ADVISED OF THE POSSIBILITY THEREOF. BRADY's LIABILITY, IF ANY, TO ITS PURCHASER OR TO ANY CUSTOMER(S) OF ITS PURCHASER SHALL IN NO EVENT EXCEED THE TOTAL AMOUNT PAID TO BRADY BY THE INITIAL PURCHASER OF THE DEFECTIVE PRODUCT.

IN THE EVENT ANY IMPLIED WARRANTIES (INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) ARE FOUND TO EXIST, SUCH WARRANTIES ARE LIMITED IN DURATION TO THE PERIOD OF THE WARRANTIES SET FORTH ABOVE.

Some States do not permit the exclusion of incidental or consequential damages, and in those States the foregoing limitations may not apply. The warranties here give you specific legal rights, and you may have other legal rights which vary from State to State.

